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Surgical Anæsthesia by the Introduction into the Colon, via the Rectum, of "Avertin"—Tri-brom. ethyl alcohol.*

By J. G. Wright, F.R.C.V.S., Professor of Pharmacology and Therapeutics, Royal Veterinary College, London.

The study of the actions of the anæsthetics and narcotics is one of great importance to us as veterinary surgeons, and we should have a sound knowledge of their practical applications in surgery and the methods of their administration.

It is highly desirable that all surgical interference be carried out under efficient narcosis, general or local anæsthesia. Not only is it desirable from a humane standpoint, but also that anæsthesia enables us to do our work with greater delicacy and comparative asepsis, both of which are necessary adjuncts to success.

Professor Hobday did much by his work on anæsthetics, at the end of last century, to popularise the use of local and general anæsthetics in veterinary practice. At that time general anæsthesia by the inhalation of chloroform or ether, or mixtures of these, was the accepted method; and local anæsthesia by the subcutaneous or perineural infiltration of cocaine or one of its synthetic substitutes.

Since that time many types of anæsthesia have been introduced, but none have gained much favour with the general practitioner; no doubt the dangers associated with errors in technique have caused us to dismiss these methods. I refer to spinal anæsthesia, anæsthesia in horses by the intravenous injection of chloral hydrate, etc.

It has long been recognised that the induction of anæsthesia by the introduction of agents into the rectum and colon has a definite place in surgery, and, as long ago as 1847, Roux produced narcosis in man by the introduction of ether vapour into the colon. The method, however, was attended by many disadvantages and never came into general use.

In 1913, Gwathmey developed a method of rectal anæsthesia by the introduction into the colon of a mixture of ether and olive oil, the name rectal or colonic ether being applied to the method, which has been extensively used in the human subject.

The first reference I find to this method being systematically used in animals is by Beckman in the *Journal of the American Veterinary Association*, July, 1925. His conclusions are that 1 oz. of a mixture of 75 per cent. ether and 25 per cent. olive oil per 20 lbs. body weight, introduced into the colon of dogs, one hour after the injection of ·019 m. morphine sulphate per kg. body weight (1½ grains) is effective in inducing safe and very satisfactory surgical anæsthesia and in maintaining same for a little more than one hour.

I have on several occasions followed his technique and dosage, but the results were not entirely satisfactory. The injection provoked straining and some of the anæsthetic was ejected. In addition, the absorption of the ether gave rise to a very definite period of excitement in which one animal screamed out and, finally, I did not attain general anæsthesia.

In the *British Medical Journal* of May 18th, 1929, Hughes recorded the value of rectal ether in the human subject, using the following mixture:—

Mag. Sulph.	2 oz.
Glucose	1½ oz.
Olive Oil	1 oz.
Acacia	5½ drs.
Ether	4 oz.
Paraldehyde	4 drs.
Morphine sulph.	¼ grain.
Water to	12 oz.

I have given this method a trial in dogs and cats but, here again, found a number of disadvantages which tended to render the method of little practical value to us. The quantity of liquid to be injected may entirely fill the colon and well up and escape from the anus. The tendency is for it to provoke straining, especially in cats, and finally the slowness of onset of narcosis. In one animal, a spaniel bitch, suffering from paraplegia, the whole of the injection was retained and profund anæsthesia occurred in 1½ hours and persisted for three hours.

Recognising that there must be a great field for rectal anæsthetics in veterinary surgery and not having had much practical success with the methods mentioned, it was with considerable interest that one read the report of the discussion on Avertin anæsthesia in the *Proceedings of the Royal Society of Medicine*, of December, 1929. Even in institutions of this kind, where we have plenty of help and where one has the assistance of a trained person entirely in charge of the anæsthetisation, there are still a considerable number of operations in which inhalation anæsthesia is unsuitable. I refer to operations upon the mouth and pharynx and larynx, the eyeball and external ear; and also subjects in which there is chronic pulmonary or cardiac disease.

Tri-brom. ethyl alcohol, $CBr_3\ CH_2\ OH_1$ was first produced by Willstätter and Duisberg by yeast fermentation of bromal, and Eichholtz, in 1927, studied its pharmacological actions and introduced it into the therapeutics.

It occurs as a white crystalline solid with a sharp melting point of 80° C. It is soluble in water to 3½ per cent. at 40° C and at this temperature is fairly stable, but at higher temperatures it may split up, yielding hydrobromic acid and dibrom. acetaldehyde.

At first we were using this solid, but later the makers

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DEPT. OF VET. MEDICINE

introduced a fluid Avertin, which comprises tri-brom. ethyl alcohol held in solution in anylene hydrate. This occurs as a colourless, syrupy liquid, with a faint characteristic odour. It is soluble to 3 per cent. by agitating it for 3-4 minutes in distilled water at 40° C. An exposure to air in thin layers the solvent rapidly volatilises, leaving the solid Avertin behind.

1 c.c. of fluid Avertin=1 gm. of the solid.

Dosage.—In man the dose used varies from 0·08 to 0·15 gm. per kg. body weight, the average dose for a person of 10 stones being 6·5 gms. (110 minims), dosage by body weight being strictly adhered to. Before introducing the drug into this country and before allowing it to be supplied, the manufacturers handed it over to the Anæsthetics Committee for their extensive trial and approval (*Lancet*, March, 1929).

Regarding its chemistry, I have referred the formulæ and other data supplied to my colleague, Dr. Clough, who informs me that they are in order and that there is nothing of the secret nature about Avertin. (I say this, knowing full well what an abhorrence some members have for anything they consider of a proprietary nature.)

In the human subject the depth of narcosis would appear to vary slightly. About a quarter of the cases give satisfactory general anæsthesia with Avertin alone, and these include cases of gastrotomy, enucleation of the thyroid gland, etc., whilst in others, anæsthesia is reinforced by such agents as gas and oxygen, or ether, occasionally $CHCl_3$. The patient is prepared by the administration of an enema or a laxative some twelve hours before; and a hypnotic such as morphine or hyoscine an hour before operation.

When considering the dose with which Avertin might be given to dogs, it was at once realised that the dosage by body weight recommended for the human subject would hardly apply; it being a recognised fact that as a general rule a dog of 30 lbs. will take approximately the same dose as an average adult man, 5-6 times its weight. At the same time, it was considered best to commence with this dose (i.e., 0·1 gm. per Kg. body weight) and increase it if necessary.

Cases.

Case 1.—An Airedale bitch, 8 months, weight 30 lbs. for the operation of ovariotomy. The bitch was narcotised by the subcutaneous injection of morphine sulphate gr. i. One hour later a dosage of 0·1 was given rectally. In ten minutes there was an obvious deepening of the narcosis, which was best shown by the relaxation of the musculature of the limbs. It was, however, very transient. At no time was there general anæsthesia and the operation was performed under $CHCl_3$.

Case 2.—This was a cat suffering from a fracture of the pelvis. It was thought to use Avertin so that a satisfactory examination might be made, the animal being in considerable pain. A dose of 0·2 was given. Immediately after injection the cat struggled and a little of the liquid was ejected; but in two minutes it was narcotised and quite unable to stand. At the end of four minutes the muscles became relaxed. All reflexes were present and movement of the hind limbs caused pain. This degree of narcosis persisted for 30 minutes, after which it was decided, in view of the extensive injury to the pelvis, to destroy the animal with $CHCl_3$.

Case 3.—Our next case, a 9 months male cat, weighing 8 lbs., was sent to the college for castration and also for an operation for umbilical hernia. It was decided to increase the dose to 0·3. Twenty grains of Avertin were given rectally. Five minutes afterwards general anæsthesia was complete. Light corneal reflexes were present but sluggish. Both operations were performed, no restraint being placed upon the animal. Deep anæsthesia persisted for 1 hour, after which the animal passed into a state of deep narcosis which lasted for six hours, this gradually passing off and the animal being normal again ten hours after injection.

The somewhat strikingly satisfactory result obtained in this case led us to believe that, if consistent results of this nature could be obtained in cats with a dosage of 0·3 gm. per kg. body weight, Avertin would prove a very valuable addition to our knowledge of anæsthetics. The following cases will demonstrate our further results with this dosage.

Case 6.—A 9 months, castrated cat. Weight 8 lbs. Suffering from a cleft palate, the result of a fall. Twenty grains Avertin administered. In 5 minutes general anæsthesia was provoked. The operation of suturing the palate was commenced at the 10th minute and completed at the 25th. At no time was there any evidence of sensation, all reflexes were absent. This degree of anæsthesia persisted for 2 hours, to be followed by deep narcosis for 8 hours. At eighteen hours there was still some inco-ordination of the limbs; at 21 hours the cat was normal.

Case 8.—A 12-months cat of a nervous disposition, in which handling of the mouth was difficult and in which we wished to examine the pharynx and œsophagus for the presence of a suspected foreign body. Dosage as before was adopted and in 5 minutes narcosis was performed. The mouth and pharynx were examined and the probang passed into the stomach. The animal was not restrained and in no way resisted. In this case reflexes were not entirely absent; the drug's action persisted for 18 hours.

Case 14.—This case is of interest. A 2-year old male cat suffering from pus in the antrum on the right side. It was decided to extract the 4th molar tooth for drainage.

In this case fluid Avertin of the same dosage was used. General anæsthesia ensued after 6 minutes and the tooth was extracted. The duration of the drug's action was similar to the preceding cases.

Our results in the cat having, up to this point, been consistent, it was decided to use the drug as a general anæsthetic for carrying out operations involving opening of the abdominal cavity and manipulation of the peritoneum.

Case 20.—A 6-months female cat, weight 6¼ lbs., for ovaro-hysterectomy.

Fluid Avertin of a dosage 0·45 was given (22 minims). Anæsthesia occurred in five minutes, and all visible reflexes were absent. The operation was carried out without restraint. Excessive traction upon the peritoneum caused a little reflex jerking of the fore limbs.

Deep narcosis persisted for 30 hours. In all, the cat was under the influence of the drug for 40 hours, after which recovery was uneventful.

Case 21 was of a similar nature. A seven-months cat of 4½ lbs. In this case it was decided to revert to a dosage of 0·3, and so 10½ minims of fluid Avertin were given. The onset of anæsthesia occurred in eight minutes, when

the operation was commenced. Skin and muscular incisions were made under perfect anæsthesia, but here again, traction on the peritoneum caused a little reflex jerking of the limbs. This was controlled by a few whiffs of $CHCl_3$. As before, of course, no restraint was used.

The drug's influence persisted for 20 hours.

To return to the dog. In view of our experiences in the cat, and bearing in mind that weight for weight the dog takes approximately five times the dose for the human subject, it was decided to commence with a dose of 0·4 gms. per kg. body weight; but in order to establish the value of Avertin no previous narcotics would be used.

Case 4.—A two-year old wire-haired terrier bitch. Weight 15 lbs. Health good. A sewing needle and thread was obstructed in the pharynx. Forty-five grains of Avertin solid were given rectally and in five minutes the bitch was unable to stand. In ten minutes there was complete anæsthesia, reflexes, including the cornea, being absent. The foreign body was removed. At 17 minutes reflexes were returning; there being a sluggish response to the scratch reflex, and at 25 minutes the bitch was normal.

This, our first real experience of Avertin in the dog, was that it produced profound anæthesia in eight minutes, which persisted for nine minutes, after which the animal rapidly recovered.

Case 5.—Our next subject, a six-years old Yorkshire terrier bitch, weighing 5¼ lbs., suffering from a panophthalmitis of the right eye. It was decided to remove the eyeball. The animal was in poor health and in an emaciated condition. A dosage of 0·45 was used; 18 grains. The operation was performed between the 6 and 12 minutes after injection under perfect anæsthesia, which persisted for one hour. At 70 minutes the animal raised its head, and at 80 minutes was able to walk with a staggering gait. Recovery from the anæsthetic was uneventful.

This animal died 14 days afterwards. *Post-mortem* examination revealed advanced intestinal nephritis with calculus formation in each pelvis.

Case 9.—This was of a similar nature. A five-years smooth fox-terrier, fat and lethargic, suffering from glaucoma of the right eye, the result of an injury two years previously. Weight 23 lbs. The increased weight being due to fat, it was decided to revert to 0·4 dosage, 64 grains of solid Avertin being used. The operation of removal of the eyeball was commenced at ten minutes and quickly completed under general anæsthesia. At 25 minutes reflexes were returning. At 30 minutes the animal was endeavouring to rise. At one hour, normal.

Reviewing the last three cases, we find that Avertin in a dosage of 0·4-0·45 caused the onset of general anæsthesia in the dog in from five to ten minutes, but that it tended to be transient, the periods being respectively: nine minutes, 20 minutes, and one hour, and that recovery was rapid. No doubt the general condition and temperament play a part. It was thus decided to persist with this dose until more definite results had been established.

Case 10.—A 12 months' Mongrel bitch, weight 18 lbs., for ovaro-hysterectomy. The animal was in good health.

Forty-eight grains given. General anæsthesia was present at five minutes. The operation was commenced at six minutes and completed at 15. It was carried out under perfect anæsthesia without restraint. Anæsthesia persisted for 35 minutes and at 90 minutes the bitch was normal.

The excellent results obtained in this case decided us to adopt the same dosage in the next.

Case 11.—A four months mongrel bitch puppy, of the same weight, for spaying. Avertin was administered under the usual routine and in six minutes there was evidence of narcosis. There was, however, no anæsthesia. At ten minutes the animal struggled and ejected a considerable portion of the injection together with flocculent fæcal matter. At 15 minutes the animal was normal.

It was thought in this case that, the puppy having retained some of the fluid of the previously given enema, this was the cause of the poor result obtained.

One hour later a second injection was given and this time the dose increased to 0·5 (60 grains). The onset of deep narcosis occurred in six minutes; it was, however, not sufficiently profound for operation and $CHCl_3$ by inhalation was given.

Case 12.—The fact that a dosage of 0·4, whilst producing profound narcosis, was not entirely reliable as a general anæsthetic was established by this case. Although complete muscular relaxation was present six minutes after injection, a little $CHCl_3$ by inhalation was necessary for removal of the eyeball.

From this point the dose for the dog was increased to 0·6 gm. per kg. body weight, in every case using fluid Avertin; and the next three cases gave uniformly good results. It will be noticed that in each case the animal was aged.

Case 18.—A seven years' terrier bitch, weighing 15 lbs. The case was one of dystokia and the operation of metrectomy was to be performed. Seventy minims of Avertin were used. The operation was commenced at 12 minutes and completed at 60 entirely under Avertin. The bitch recovered consciousness in two hours but died 14 hours after operation.

Case 19.—A six years' Pomeranian bitch of 9½ lbs., with a large inguinal hernia. Forty-three minims were used. The operation was commenced at 10 minutes and completed at 30 under general anæsthesia which persisted to 50 minutes. It was followed by a transient stage of narcosis, the animal being normal at 1½ hours.

Case 22.—A seven years' Welsh terrier, 22 lbs. The animal was suffering from a large neoplasm, involving the fauces and the pharynx. I saw the case with my colleague, Mr. J. H. Holmes, who performed the operation. The onset of general anæsthesia occurred in five minutes and persisted for 40 minutes. An excellent recovery was made from the anæsthetic but the animal died five days later from sepsis.

You have probably noticed that, up to this point, all our work has been done with comparatively small animals, cats up to 11 lbs. and dogs up to about 25 lbs.

Case 13.—Professor Hobday passed on to me a case of his, an aged Alsatian weighing 88 lbs., for the removal of neoplasms from the ventral aspect of the tongue and the left pillar of the fauces, this type of case being especially suitable for rectal anæsthesia. To overcome any tendency to panic on the part of the subject during the injection, morph. sulph. gr. ½ was given subcutaneously three hours previously. Avertin, solid, 250 grains, was used, it being all the drug we had available at the time. This is a dosage of 0·4. Nine minutes after injection sensation was not

completely lost and a little $CHCl_3$ by inhalation was commenced. At 12 minutes it was obvious that Avertin had produced anæsthesia and inhalation was dispensed with. The growths were removed and the tongue sutured. Anæsthesia persisted for 15 minutes. As with all the previous cases, no restraint was used.

I apologise, Gentlemen, if you find this record of cases boring, but my object in presenting them to you is that whilst in the cat results throughout have been most consistent, in the dog there have been variations, and each case has, to my mind, some point of interest.

Case 22.—This case was a failure, due, I think, to the fact that we did not ensure that the rectum and colon were empty prior to injection. A five months Airedale puppy, weighing 31 lbs. The animal had been involved in a street accident, the metacarpal bones of the left limb being fractured. A dosage of 0·5 was used. In four minutes, although there was evidence of narcosis, the injection acted as an enema, the rectum and colon being full of soft fæces.

Case 28.—As a contrast to this, a six months whippet puppy was given a dosage of 0·6, having been given an enema three hours previously; which resulted in deep narcosis for a period of 30 minutes.

Finally, Case 23 demonstrated a definite value of Avertin in the dog. A four-months Pekinese puppy weighing 5 lbs. I saw the case with Mr. C. Formston, M.R.C.V.S., of this Institution, who had diagnosed intrathoracic obstruction of the œsophagus by a foreign body. In such cases our practice, if an X-ray photograph is not immediately available, is to pass the probang to ascertain the position of the obstruction; whether it is over the heart or at the diaphragm on the thoracic side. The passage of this instrument without previous narcosis is dangerous. Morphine has a distinct disadvantage; the vomition it provokes may prove fatal (I received such a case in the *Veterinary Journal* of June, 1929), whilst inhalation anæsthesia by $CHCl_3$ may, in such cases, in view of the struggling which occurs, cause respiratory failure.

Avertin fluid, a dosage of 0·5 was given, and in six minutes there was deep narcosis; the probang was passed and the obstruction located over the heart. The operation of presternal œsophagotomy was performed with the addition of light $CHCl_3$ anæsthesia and the obstruction removed (specimens shown).

Symptoms.

Avertin in three per cent. solution is rapidly absorbed from the mucosa of the colon, and evidence of muscular relaxation occurs in two to three minutes after injection. The onset of narcosis occurs in from five to eight minutes, and is not preceded by any definite period of excitement in the dog; but I find that in the cat a few convulsive movements of the limbs occur a few minutes (usually three) after injection. The drug, if properly prepared, is entirely without irritant effect, and in no case has it provoked straining. The two cases in puppies in which it acted as an enema were attributable to other causes.

The onset of deep narcosis is shown by marked muscular relaxation, and even in cases where there is no general anæsthesia the animal is unable to move.

The duration of narcosis varies. In the cat with a dosage of 0·3 it persists for 18 or more hours, whilst in the case in which 0·45 was given, it persisted for 40 hours. In the dog it is by no means so regular and in all cases is much more transient. 0·4 has produced deep narcosis for periods varying from nine minutes to one hour. A dosage of 0·6 usually provokes narcosis for one hour, but age and temperament would appear to play a part in the duration and depth of the drug's action. Puppies, particularly those under six months, appear to be less susceptible than are adults, and in these subjects it will usually be found necessary to reinforce "Avertin" narcosis by light inhalation anæsthesia.

Respirations become slower and shallower, but remain perfectly regular under Avertin narcosis; in the dog and cat, 30-40 per minute. In no case have I seen any evidence of cyanosis or suspicion of respiratory failure. The Cheyne-Stokes type of respiration observed under morphine is not seen with Avertin.

The pulse rate does not appear to be affected. In the dog it usually remains between 100 and 150, and in the cat may be 200 or more. Observers agree that there is some fall in blood pressure, but that it is not marked.

A noticeable action of the drug upon the circulatory system is a marked dilatation of the peripheral vessels. The skin becomes suffused with blood and a marked warmth of the ears and extremities is felt. The tip of the nose (if unpigmented) and the tongue and gums become a bright pink colour. To avoid loss of heat by radiation we make a practice of keeping the animal warm.

The action upon the pupil is worthy of mention. In light narcosis, when light and corneal reflexes are present, there appears to be little or no effect upon the pupil, but in deep narcosis, and when reflexes are lost, the pupil in the case of the cat becomes a narrow slit and in the dog the size of a pin head.

This phenomenon serves to give one an indication of the degree of narcosis present.

Toxicity.

So far, we have had no evidence of toxicity in the doses mentioned. In some cases, particularly in cats, narcosis may be so profound and persistent as to be alarming, but recovery from anæsthesia has always occurred. It must be borne in mind, however, that any agent having such a profound effect upon the central nervous system must of necessity be associated with danger. The general rule with anæsthetics is that they progressively depress and subsequently paralyze the respective parts of the nervous system in the inverse order of their development, *i.e.*, the cerebrum is the first part affected, to be followed by the spinal cord, the medulla oblongata being the last to be influenced. Depression of this organ is indicated by the influence the drug exerts upon the respiratory and circulatory systems. Eicholtz and Straube have shown that circulatory collapse can be caused by over-dosage. It is for this reason that we have strictly kept to a dosage computed according to the animal body weight. This is particularly important in cats, in which animal the actual dose is small (8 lbs., 20 m.), and a few minims will greatly alter the percentage dosage

Of the cases recorded, five have died, but in no case does one associate death with the anæsthetic used. All the cases in which the drug has been used have been surgical ones, and in some operations of a serious nature have been performed.

Case 6.—The cat with traumatic cleft palate and fracture of the palatine bones died 14 days after operation as the result of necrosis which had occurred.

Case 5.—The six-years Yorkshire terrier. Died 14 days after operation, and *post-mortem* revealed extensive kidney disease.

Case 18.—A bitch suffering from dystokia and upon which metrectomy was performed, died 14 hours after operation.

Case 22.—In which a large neoplasm was removed from the fauces and pharynx, died five days after operation as the result of necrosis.

Case 29.—Died 40 hours after operation, without recovering consciousness.

Preparation of the Patient and of the Narcotic.

The rectum should be empty at the time of the injection and this may be ensured by a previously given laxative or enema. In the case of the cat we have not paid great attention to this point, and it has not affected our results, except one case in a cat, when rectum being full lessened result. Food should be withheld for six hours prior to anæsthetisation. In one case (Case 10), the presence of food in the stomach gave rise to vomition. If an enema is used it should be given three hours before injection. The presence of fluid in the rectum at the time of injection of the Avertin will greatly reduce its action. No previous narcotic, unless the subject is of a refractive nature, should be necessary.

Dosage.

Having taken the animal's general condition into consideration, the dose used is 0·3 gm. per kg. body weight for the cat, and 0·5 to 0·6 for the dog. This is administered in three per cent. aqueous solution (distilled water being used) at 40° C. (I append a table giving the doses in the metric and imperial systems according to the animal's body weight.)

The Avertin, whether the liquid or the solid is used, is agitated in the distilled water for five minutes, and so dissolved.

The purity of the injection is tested by adding one to two drops of a 1-1000 solution of Congo red in a clean test tube to five c.cs. of the liquid just before administration. (It is necessary to add two minims extra to the computed dose for the carrying out of this test.) The resulting colour must be pure orange red. The presence of acidity is indicated by the colour turning blue and may occur if the temperature of the water is too high.

Administration.

I propose to show you a few photographs of the method of administration, and will, with your permission, demonstrate it to you in a few moments.

Finally, Gentlemen, I would sum up by saying that whilst one does not suggest that Avertin should be used as a routine anæsthetic in our small animal practice, at the same time I think that for certain operations it possesses distinct advantages over the narcotics we are at present using. We have no serviceable narcotic for the cat, and in this animal we have to fall back upon inhalation anæsthesia. Adult cats, especially, appear to be particularly susceptible to the toxicity of $CHCl_3$, and if the anæsthetisation is not performed with care, accidents will result. We have all encountered those cases in which a marked period of excitement is almost immediately followed by collapse. Morphine acts as an excitant. I have tried to produce satisfactory narcosis with hyoscine, chloral hydrate and paraldehyde without much success. Hamilton Kirk has shown that chloretone, whilst acting as a narcotic in cats, may terminate fatally. Various types of chambers into which $CHCl_3$ is introduced have been suggested, and we are given to believe that the cat quickly and quietly becomes oblivious. Such, I suggest, is not the case. It is for these reasons that one hopes that a rectal narcotic of this nature may be of service to those who treat cats.

For the dog, we already have in morphine a very serviceable narcotic, and I do not think that a rectal narcotic such as Avertin is likely to replace it entirely. Morphine, however, does not produce anæsthesia, whereas we have found that in suitable cases Avertin does. The toxicity of $CHCl_3$ for the dog is not, provided care is taken, of great moment, and combined with morphine narcosis is still, I think, the best anæsthesia we have for abdominal surgery in this animal.

It is for operations about the mouth, pharynx and larynx, and the eyeball, in which inhalation anæsthesia is unsuitable, that we shall find rectal anæsthesia of most service in the dog.

I should like to take this opportunity of thanking my colleague, Mr. K. Everett, M.R.C.V.S., Mr. R. Machin and Mr. N. P. Male and other members of the final year class, for the help and encouragement they have given me when carrying out this work.

Dosage Table.

A. CATS. 0·3 gm. per kilogramme bodyweight.

(In animals in which increased weight is due to fat reduce dose to 0·2.)

Weight.		Avertin.		Solution for Use. Distilled Water.		40° C.
Lbs. or Kilos.		C.cs. or†	Minims	*C.cs. or Ozs.		D'chm.
3	1·3	0·4	7	12	—	3½
4	1·8	0·5	9	18	—	5
5	2·3	0·7	11	23	—	6½
6	2·7	0·8	14	27	—	7½
7	3·2	0·9	16	32	1	1
8	3·7	1·1	18	36	1	2
9	4·1	1·2	20	40	1	3½
10	4·5	1·3	22	46	1	5
11	5·0	1·5,	25	50	1	6
12	5·4	1·6	27	54	1	7½
13	5·8	1·7	29	58	2	½
14	6·3	1·9	32	63	2	2
15	6·8	2·1	35	70	2	4
16	7·3	2·2	37	73	2	5
17	7·7	2·3	39	76	2	5½
18	8·2	2·5	42	83	2	7½
19	8·7	2·6	44	86	3	½
20	9·0	2·7	46	90	3	2

† Plus 2 minims for testing.
* Plus 5 c.cs. (80 minims) for testing.

B. DOGS. 0·6 gm. per kilogramme bodyweight.

(In animals in which there is evidence of disease reduce dose to 0·4.)

Weight.		Avertin.		Solution for Use. Distilled Water.		40° C.
Lbs. or Kilos.		C.cs. or †Minims		*C.cs. or Ozs.		D'chm.
5	2·3	1·4	23	48	1	6
10	4·5	2·7	46	90	3	2
15	6·8	4·1	70	135	5	—
20	9·0	5·4	92	180	6	3
25	11·3	6·8	116	225	7	7½
30	13·6	8·2	138	275	9	5½
35	15·8	9·5	161	315	11	—
40	18·1	10·8	180	360	12	6
45	20·5	12·3	200	410	14	4
50	22·7	13·6	230	455	16	—
55	25·0	15·0	250	500	17	4
60	27·2	16·3	275	550	19	—

† Plus 2 minims for testing.
* Plus 5 c.cs. (80 minims) for testing.

Post-script.—Since the presentation of this paper, we have increased our experience of Avertin anæsthesia. An additional 19 anæsthetisations having been carried out, 14 in the cat and five in the dog. The doses used have been similar to those mentioned previously—0·3 for the cat and 0·4 to 0·6 for the dog.

In two cases we have had evidence of the toxicity of the drug.

Case 41.—A 10-years old Collie type bitch. The animal was in an emaciated condition and weighed only 20-lbs. An operation was necessary for necrosis of the nasal bones. A dosage of 0·6 was used, 6 c.cs. of fluid Avertin being given. The onset of general anæsthesia occurred in five minutes. At 13 minutes respirations ceased and the heart stopped at 18 minutes. Antidotal measures comprised artificial respiration, ammonia vapour by inhalation, Scheele's H.C.N. upon the tongue and the injection of Avertin into the pericardium.

Post-mortem examination revealed advanced intestinal nephritis and thickening of the mitral valve.

Case 33.—A male cat, 12 months old; dosage 0·3; died four hours after injection. (This was the animal exhibited at the meeting.)

Post-mortem revealed death to be due to cardiac failure, but no reason for its occurrence could be demonstrated.

The conclusions one draws from these facts are that, whilst a dosage of 0·6 is safe and effective for dogs in good health, it may be fatal for animals suffering from chronic disease, in which cases a dosage of 0·4 should not be exceeded.

In the cat a dosage of 0·3 has been used in 23 cases with excellent results; in one, death has occurred.

. . . . .

Professor Wright showed a number of excellent photographs in illustration of his paper, and concluded by giving two very effective demonstrations of the use of Avertin. The subjects of his demonstration were:—

1.—12-months cat, for castration. Weight 4 kgs. (8 lbs. 12 ozs.). Dose at 0·3 = 1·2 c.cs. or 20 m. + 2 for testing, in 45 c.cs. (1½ ozs.) distilled water.

2.—18-months bitch. Weight 9 kg. (19¾ lbs.). Dose at 0·6 = 5·4 c.cs. or 90 m., in 180 c.cs. (6½ ozs.) distilled water.

The demonstrations were entirely successful, both animals being completely anæsthetised within five minutes. The cat was castrated by the torsion method.

(For Tables of Cases see pages 519, 520 and 521.)

Discussion.

The President (Professor James Macqueen) observed that the Fellows had heard and seen what might be regarded as quite a new departure from the usual contribution made to veterinary societies, and he thought that Professor Wright deserved their heartiest commendation for his thesis, which he had gradually developed from what he might call the beginning until he had established that it was possible, by using that new agent, Avertin, to produce surgical anæsthesia in the dog and cat.

It was unnecessary, he thought, for him to say more, because there was no doubt that a great many of them would want to ask questions, but he would just like to add that they owed Professor Wright a very hearty vote of thanks for what he had done for them on that occasion. (Applause.)

Mr. A. Spicer expressed his appreciation of the paper and demonstration and proceeded to make reference to the subcutaneous use of Avertin. He gave avertin subcutaneously to an aged cat in poor condition (sent in to be destroyed), using a dosage of 3 c.c. with the usual quantity of water. The cat was in a state of deep narcosis in 20 minutes and remained in a condition of complete anæsthesia for three hours, at the end of which time it died.

He had tried the use of the drug on a dog, but he did not give more than 4 c.c. and failure resulted. The leakage from the rectum in the dog had been considerable; it appeared to him that at least two ounces of the solution came back from the rectum of the dog they had seen that evening. Perhaps the big leakage accounted for the fact that the dog came round more quickly than the cat. If one got a big Alsatian dog to anæsthetise by Avertin, and used the rectal method, one would be getting up to very large quantities of fluid, and he thought that if the dog were conscious it would show a tendency to expel such a quantity; in fact, the injection would act as an enema.

Major Hamilton Kirk said that he would like to compliment Professor Wright upon the very admirable and interesting paper he had given them that evening. He had rarely listened to one which interested him more, because he conducted a fairly extensive small animal practice, and he had always found it difficult to induce any sort of anæsthesia in cats other than by the use of chloroform. He had made many experiments in the past in addition to the trial of chloretone as referred to by the essayist.

For instance, knowing that paraldehyde was the recognised drug for subduing violent lunatics, he thought it might be used on dogs and cats and he started with about one fortieth of the human dose—but with no result. The dose was gradually increased until the human dose was exceeded, yet narcosis was never induced. He had used hyoscine and cannabis indica in huge doses still without result. But he had been able to induce 8 or 9 hours' sleep in cats by the rectal injection of syrup of chloral in gum solution at body heat.

It was wonderful to learn that evening that they had a drug which would produce complete anæsthesia so rapidly and so safely. Only that morning he had been asked to scale and extract teeth of a whippet—a very old and exceedingly nervous animal, and one which he would hesitate to chloroform. If only he had had Avertin available it would have greatly facilitated his task and saved the animal a great deal of fright.

He would like to ask Professor Wright if he thought that an enema was really necessary before giving Avertin, because if one had to do this three hours before one could commence an operation, it rather precluded undertaking such tasks at short notice or when a favourable opportunity presented itself. Would it be sufficient if one ascertained per the abdominal wall that there were no hard

CASES.

Case No.	Subject.	Age.	Wt., lbs.	Operation.	Dosage.		Narcosis.			Other Drugs Used.	Remarks.
					Gms. per kg. bodywt.	Actual.	Onset, mins.	Degree.	Duration.		
2	Cat M.	4 yrs.	8	Examination, fracture of pelvis and femur.	0·2	14 grs.	4	Deep narcosis. No general anæsthesia.			About one-third of injection ejected owing to struggling. Animal destroyed with chloroform 30 mins. after injection, owing to extensive injury.
3	Cat M.	9 m.	8	Castration. Umbilical hernia.	0·3	20 grs.	5	General anæsthesia, 1 hour.	Narcosis, 10 hours.		Operations performed under perfect anæsthesia. No restraint. Reflexes lost.
8	Cat C.M.	12 m.	8	Exam. pharynx and œsophagus. Pass probang.	0·3	20 grs.	5	Light anæsthesia, ½ hour.	Narcosis, 18 hours.		Reflexes present throughout, but sluggish.
14	Cat M.	2 yrs.	9	Pus in antrum. Extraction of molar tooth.	0·3	21 minims	6	General anæsthesia, 2 hours.	Narcosis, 18 hours.		Tooth extracted without restraint. Reflexes present, but sluggish.
6	Cat C.M.	9 m.	8	Traumatic cleft palate.	0·3	20 g s.	5	General anæsthesia, 2 hours.	Narcosis, 18 hours.		Cat made normal recovery from anæsthesia, but died 14 days after operation from toxæmia following necrosis of palatine bones.
20	Cat F.	6 m.	6¼	Ovaro-hysterectomy.	0·45	22 minims	6	General anæsthesia, 12 hours.	40 hours		All visible reflexes lost; traction on peritoneum caused little jerking of limbs.
21	Cat F.	7 m.	4½	Ovaro-hysterectomy.	0·3	10·5 minims	8	General anæsthesia, 2 hours.	20 hours	A few whiffs of Chloroform to overcome jerking of limbs on traction of peritoneum.	All visible reflexes lost for 2 hours.
24	Cat C.M.	12 m.	11¼	Enucleation of eyeball.	0·3	25 minims	7	General anæsthesia, 4 hours.	23 hours		All visible reflexes lost for 4 hours.
26	Cat M.	1½ yr.	8	Castration	0·3	20 minims	8	General anæsthesia, 4 hours.	18 hours		All reflexes lost.
27	Cat F.	6 m.	5¼	Ovaro-hysterectomy.	0·3	13 minims	6	General anæsthesia, 3 hours.	16 hours.		All reflexes lost.

CASES—continued.

Case No.	Subject.	Age.	Wt., lbs.	Operation.	Dosage.		Narcosis.			Other Drugs Used.	Remarks.
					Gms. per kg. bodywt.	Actual.	Onset, mins.	Degree.	Duration.		
29	Cat F.	5 yrs.	7¼	Metrectomy	0·3	18 minims	7	General anæsthesia.			Animal parturient. Uterus containing two decomposed fœtuses removed under perfect anæsthesia.
1	Dog F., Airedale.	8 m.	30	Ovaro-hysterectomy.	0·1	23 grs.	5		A few minutes	Bitch previously narcotised with Morph. Sulph. subcut. Gr. i. Operation performed under chloroform.	Avertin caused a transient deepening of narcosis marked by relaxation of limb muscles.
4	Dog F., Wire-haired Terrier.	2 yrs.	15	Removal of needle from pharynx.	0·4	45 grs.	5	General anæsthesia.	9 mins, followed by narcosis for 1½ min.		The animal normal 25 mins. after injection.
5	Dog F., Yorkshire Terrier.	6 yrs.	5½	Enucleation of eyeball.	0·4	18 grs.	5	General anæsthesia, 1 hour.	Followed by narcosis for ½ hr. after which recovery normal.		All reflexes lost.
7	Dog F., Whippet.	4 m.	15	Reset fracture radius.	0·3	34 grs.	5	Deep narcosis.	No anæsthesia	Chloroform by inhalation.	Narcosis not sufficient to overcome sensation.
9	Dog M., Smooth Terrier.	5 yrs.	23	Enucleation of eyeball.	0·4	64 grs.	5	General anæsthesia, 15 m.	Followed by narcosis for 25 mins.		Animal fat and of a lethargic disposition. All reflexes lost.
10	Dog F., Mongrel.	12 m.	18	Ovaro-hysterectomy.	0·4	48 grs.	5	General anæsthesia. 30 m.	Followed by narcosis for 45 mins.		75 minutes after injection animal was sick; due probably to its having been fed in error immediately before operation.
11	Dog. F., Mongrel.	4 m.	16	Ovaro-hysterectomy.	0·4	46 grs.					A previously given enema remaining in colon, caused the ejection of the whole, and after a little transient narcosis, bitch normal.
	Do., 1 hr. later.				0·5	60 grs.	5	Transient narcosis only.		Chloroform by inhalation to complete anæsthesia.	The result in this case was poor.
12	Dog F., Pekingese.	2 yrs.	11	Enucleation of eyeball.	0·4	32 grs.	6	Deep narcosis.	35 mins.	A little chloroform by inhalation necessary.	

CASES—continued.

Case No.	Subject.	Age.	Wt., lbs.	Operation.	Dosage.		Narcosis.			Other Drugs Used.	Remarks.
					Gms. per kg. bodywt.	Actual.	Onset, mins.	Degree.	Duration.		
13	Dog M., Alsatian.	About 8 yrs.	88	Removal of growths from tongue and fauces.	0·4	250 grs.	9	General anæsthesia, 15 m.	Followed by narcosis for 10 mins.	Morph. gr. $\frac{1}{3}$ 3 hrs. previously. Chloroform was commenced but discarded, as it was unnecessary.	
15	Dog M., Manchester Terrier.	8 m.	14	Inguinal hernia	0·45	50 minims.	8	General anæsthesia, 30 mins.	Followed by narcosis for 35 mins.		
16	Dog F., Pomeranian.	12 m.	$5\frac{3}{4}$	Examination of lacerated pharynx.	0·4	20 minims	10	Deep narcosis.	20 mins.		Sensation not completely lost.
17	Dog M., Collie.	10 yrs.	43	Examination of lacerated pharynx.	0·4	138 minims	8	Narcosis	40 mins.		Sensation not completely lost.
18	Dog F., Terrier.	7 yrs.	15	Dystokia. Metrectomy.	0·6	70 minims	5	General anæsthesia.	2 hours.		Operation took 45 mins. Bitch died 14 hrs. after operation.
19	Dog F., Pomeranian.	6 yrs.	$9\frac{1}{2}$	Inguinal hernia	0·6	43 minims	6	General anæsthesia, 40 m.	Followed by a transient narcosis.		
22	Dog M., Terrier.	7 yrs.	22	Removal of large neoplasm in fauces.	0·6	90 minims	5	General anæsthesia, 40 m.	Followed by transient narcosis.		Animal made excellent recovery from anæsthesia, but died five days after operation. Toxæmia.
23	Dog M., Airedale.	5 m.	31	Fracture of the metacarpal bones.	0·5	118 minims					The rectum and colon being full of fæces, the injection acted as an enema, and had no effect other than a very transient inco-ordination of musculature.
25	Dog M., Pekingese	4 m.	5	Intrathoracic obstruction of œsophagus. Passage of probang.	0·5	19 minims	6	Deep narcosis.			Probang passed without resistance. Lengthy operation of removal of foreign body completed under light chloroform anæsthesia.
28	Dog M., Whippet.	6 m.	16	Rebreaking a badly set fracture of radius.	0·6	73 minims	4	Deep narcosis, 30 mins.		Little chloroform by inhalation necessary for rebreaking leg.	No response to reflex stimulation.

fæces in the bowel, and then to proceed to administer Avertin?

Also if one had a dog that barked the whole of the night, would it be practicable to give Avertin in order to keep it asleep. (Laughter.) Some of Professor Wright's cases had apparently slept for 40 hours.

[Professor Wright: "It would cost you a lot of money." (Laughter.)]

Proceeding, Major Kirk said that another question he would like to ask was whether, before giving Avertin, one must be sure of the soundness of the patient's heart? Whether one should make a practice of sounding the heart, and whether there were any indications which pointed to the avoidance of Avertin anæsthesia?

Mr. J. W. H. Holmes (a visitor), said that during the last few weeks he had taken advantage of Professor Wright's assistance with the use of rectal Avertin in the performance of several operations.

One case, a Sealyham bitch from which he removed a pregnant uterus, was operated upon under Avertin anæsthesia, which was perfect throughout. One advantage of Avertin over chloroform and morphia was that the animal came round very soon afterwards. The second case was Case No. 22 in the series recorded in the paper, and it was really inoperable, but as the dog was in pain they decided to try to operate and give the animal a chance. If they had given morphia and chloroform it would have been exceedingly difficult to examine and operate upon the neoplasm in the fauces. The tumour was quite easily removed under Avertin anæsthesia, and the animal made an excellent recovery from the anæsthetic, but died five days later from toxæmia.

Another case was a Collie dog, a very large one, in which they wanted to examine the fauces for a similar condition, but they did not operate.

Teeth and eye cases were cases in which the use of Avertin was specially indicated.

Major F. J. Taylor expressed his thanks to Professor Wright for his very admirable paper, and the skilful, valuable and successful demonstrations; adding that it would indeed be a godsend if they had in "Avertin" a reliable and safe general anæsthetic of that kind for the dog, and particularly for the cat; at present one was unknown which could be used with ease and safety in the latter animal.

He would like to ask Professor Wright if he had tried a concentrated solution of "Avertin" injected into the muscle or subcutaneously, or if it would be possible to introduce it through the abdominal wall into the colon instead of per rectum.

A Member asked the essayist if he had had any experience of the use of Avertin in fits and similar nervous conditions in dogs, where morphia had an excitant effect, or would the expense be prohibitive?

Principal F. T. G. Hobday said that he would like to add his meed of praise to Professor Wright for his perseverence in working at that particular anæsthetising agent. He knew that the latter considered that that work, up to now, was not complete, but Professor Wright had done sufficient to show them its value in certain cases; and as soon as one was quite sure that there was a long range between the safe dose and the toxic dose then Avertin would be an anæsthetic which would be used generally in veterinary practice. As to its expense, most things started at a high price—but it would doubtless come down in cost as the demand for its use increased.

The Alsatian patient with tumours on the tongue was a typical case: an animal which it would have been very difficult to put on the table, and which by the use of this product had its mouth left free for operation; moreover, there was no risk of the hæmorrhage that sometimes followed the use of morphia.

Professor Wright had used Avertin rectally once in the horse, and about that he would like him to tell them; the cost, however, in this case, was somewhat prohibitive for general use, being about £2, but that would again doubtless be a matter for future adjustment with the manufacturers.

Mr. Spicer observed that one other piece of information he obtained from Messrs. Bayer Products was that Avertin had been given in the human subject intravenously: anæsthesia came on in from 1-1½ minutes and disappeared in 10 minutes.

The Reply.

Professor J. G. Wright, in reply, said that he would like to thank the Fellows very sincerely for the very kind way in which they had received the paper. In answering Mr. Spicer, he would like to say that leakage from the rectum was of no great concern once the animal was narcotised. In the bitch upon which he had demonstrated leakage did not occur until the hind limbs had been lowered to the table, by which time most of the injection had been absorbed. Avertin was absorbed exceedingly rapidly from the rectum. In any event, once general anæsthesia had been arrived at it did not matter, but it was certainly up to them to keep the animal's hind legs raised until the onset of anæsthesia.

Mr. Spicer had also stated that the injection of so large a quantity of fluid would act as an enema. No. 1 case was a cat; it was a refractory one, but at no time did it attempt to expel the injection.

In the dog, their experience was that the duration of the drug's action was comparatively short. General anæsthesia varied from 20-40 minutes, followed by narcosis for half-an-hour, after which the animal was normal. In cats it persisted for a long time.

Avertin was of no use for quietening Major Kirk's barking dog, unless he was prepared to give it every hour and a half. (Laughter.)

Agents of that kind were absorbed much more quickly from the mucous membrane of the lower bowel than they were from the subcutaneous tissues. He had not done any work on the intravenous injection of Avertin, because it would be absolutely impracticable for a practitioner to inject six-and-a-half ounces of liquid into the venous system of a dog. Moreover, in the dog the subcutaneous veins they had at their disposal were difficult to get into; it would be impossible to get the requisite quantity of fluid into them.

Major Kirk had made mention of paraldehyde and hyoscine. In the cat he (Professor Wright) had used paraldehyde in doses of 5 c.c. subcutaneously, without visible effect. The dose for the human being was 15-30 minims of paraldehyde, and of hyoscine 100 to 200ths of a grain. He had given a cat as much as one-fifth of a grain of hyoscine without any effect.

In dogs, in many cases, they had not bothered about an enema at all. If one was prepared to accept an occasional failure as the result of the rectum being full of fæces, there was no need to worry about a previous enema.

In the six-years-old Yorkshire terrier (Case No. 5), in which they had to enucleate the eye-ball, the dosage was 0·45 c.c. She was suffering from chronic interstitial nephritis and her heart was in a bad way. She recovered entirely from the anæsthetic, but died 14 days later from uræmia. He had not tried to put the injection through a needle into the colon, nor into the bladder. He had no knowledge of the drug's action in fits in dogs, nor had he tried to use it in the horse, though he proposed to do it.

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From The Veterinarian,

May, 1830.

We give with pleasure, and gratitude too, the following extract from *The Scotsman* of the 21st ultimo:—

"*Edinburgh Veterinary School.*—This useful institution has just closed for the season. The examination of those students who were candidates for certificates took place in the Lecture Room, Clyde Street, on Thursday and Friday last, when seven young men, *viz.*, Charles Lauder, Edinburgh; William Frater, Douglas Mill, Lanarkshire; Wm. Shield, Arbirlot, Forfarshire; John Murray, Dunse, Berwickshire; John Fulton, Maybole, Ayrshire; Charles Reid, Strathardle, Perthshire; and Thomas Ritchie, Scotland-well, Kinross-shire, were passed by the medical gentlemen who kindly conducted the examination. It is due to the students, and to Mr. Dick, the Lecturer, to notice the high satisfaction evinced by the examinators, and by the Directors of the Highland Society of Scotland, at the scientific and practical proficiency of the young men. The medical gentlemen were assisted on Thursday by Mr. Castley, the intelligent veterinary surgeon of the 12th Lancers, and by Mr. Henderson, veterinary surgeon, Edinburgh. The examination was also attended by Sir David Maxwell, Bart.; Principal Baird; Mr. Innes, of Stow; Mr. Graham Dalyell; Mr. Scott, of Sinton; Mr. Robertson Scott, of Benholm; Mr. Elliot, of Wolflie; Mr. Inglis, of Redhall; Mr. Clerk Rattray, etc.; by Mr. Fergusson of Woodhill, Chairman of the Highland Society's Committee on the Veterinary School; and by the Secretary and Depute Secretary of the Society, all of whom expressed their high gratification at the knowledge and acquirements of the students."

This is as it should be. The examination of the veterinary pupil is a public one. All attend who are interested in knowing that the Professor (for there is yet but one in this infant establishment) has done his duty. The examiners are the heads of the Edinburgh University. The Highland Society, under whose patronage the school of Mr. Dick is conducted, like the St. Pancras school at its first establishment, have not sufficient funds to offer proper salaries to professors of the auxiliary and subsidiary sciences. They can afford to pay but one teacher, a strictly veterinary one—his instructions, however, extending to the diseases of every domestic animal. In consequence of this, they demand from the pupil a fee, not like that at our school, which ought to cover everything, but proportionate to the advantages which they offer. He is compelled to remain at this school two sessions (two years) at least, before he can present himself for examination, and ten guineas only are demanded.

Some of the most eminent of the medical teachers, however, have, with the liberality which has distinguished other gentlemen in the English metropolis, gratuitously admitted the veterinary pupils to their theatres. Then not only courtesy, but justice requires that these gentlemen shall be present at, and shall assist in, the examination of the pupils. They have a right to know that their kindness has not been ill-bestowed. We, therefore, find them "conducting" the examination—but how? They could appreciate the improvement of the pupil in chemistry, general physiology, and the principles of medicine; but did they or could they know anything of the horse or cattle? Did they disgrace themselves, and impose upon the public, by attempting that for which they were incompetent? No!—"the medical gentlemen were assisted"—by whom?—Mr. Dick? His name does not appear. We have, however, no objection to his presence, or his assisting in the examination; but he must not be alone; not that we should doubt him—we know his honourable feeling too well—but for the sake of propriety he must not. He is too much interested in the affair—his examination is, in fact, going forward when his pupils are examined; his reputation is involved in theirs; and beside, from his daily intercourse with them, and knowing the strong and the weak points of each, he can easily, and without exciting suspicion, turn back the best, or pass the worst of them.

"The medical gentlemen were assisted by Mr. Castley, the intelligent veterinary surgeon of the 12th Lancers, and by Mr. Henderson of Edinburgh." The veterinary part of the examination was left to veterinary practitioners. This, we say, is as it should be; and we offer our cordial thanks and those of the profession to Mr. Dick for this act of justice done to his pupils and his brethren. It is a practical assertion of our claims which will not speedily be forgotten by us. Again we thank him, and in our social meetings we shall not fail to toast the man who has set our College so excellent an example. The directors of the Highland Society had the arrangement of the affair, and to them our gratitude is due; but the suggestion, so honourable to himself and gratifying to us, came, we are assured, from Mr. Dick.

What will *our* examiners say to this combination of medical and veterinary men? They refused to meet us degraded veterinarians. When they acceded to the appointment of a veterinary committee, they demanded that it should be a separate one. We were not worthy to mingle with them. Pshaw! The recollection of this may be painful to us, but the disgrace rests on those who, by assumed punctilio and pride, would prevent that exposure of their ignorance as veterinary examiners which our admission among them would soon effect. Thanks to the professors of the Northern University, who, in the persons of Messrs. Castley and Henderson, have fully vindicated our claims.

Now, Sir Astley, answer us.—"Is your committee, composed of medical men, competent at their own board, but utterly ignorant at ours, and, assisted by Messrs. Coleman and Sewell, having too much at stake in these examinations; examined in the person of every student; previously knowing too much of the candidates; necessarily prejudiced in favour of or against them; *is this the best board that can by possibility be constituted?* (we will not forget this until it is recanted, and that in the proper way)—or is it not incompetent, ineffective, partial, objectionable, compared with that of the Edinburgh school? Ask your medical friends; we do not mean your brother examiners, but they who are standing by, and can best judge of the business, and perhaps you would be startled to hear (we speak with perfect consideration) what men as eminent even as yourself, and that is affirming a great deal, do not scruple to say of your occupying a station for which you are unfit, and that to the exclusion of others who have natural claim to it, and an association with whom, whatever may have been the prejudice long diligently instilled into your mind, would not disgrace or annoy, but enable you to do justice to the pupil and the country. How easily might you redeem all, by establishing in our College (and a word from you would do it) an examination, at stated and not too frequent periods; public, impartial and conducted by competent persons. Ask your own excellent heart—Do we demand anything wrong when we demand this? Or can you blame us when we have sworn that we will not rest until we have obtained it?

Personal.

Appointments.—The Secretary of State for the Colonies has selected Mr. R. E. Montgomery, M.R.C.V.S., late Veterinary Adviser to the Governments of Uganda, Kenya, and the Tanganyika Territory, for the appointment of Adviser on Animal Health to the Secretary of State. The creation of this post was recommended by the Committee on the organisation of the Colonial Veterinary Services, whose Report was published as Command Paper, 3261.

Mr. Montgomery is at present abroad, but it is anticipated that he will be able to take up his new appointment within the next few months.

Captain F. J. Sheedy, M.B.E., B.SC., M.R.C.V.S. (Deputy Director of Veterinary Services, Tanganyika Territory) has been appointed Principal Veterinary Officer, Federated Malay States and Straits Settlements.

Clinical and Case Reports.

Hæmorrhagic Septicæmia with Pleuropneumonic Symptoms.*

By Geo. N. Gould, Junr., M.R.C.V.S., Southampton.

The herd concerned consisted of twelve milch cows, one barrener, and three heifers. The three heifers were left in an entirely separate byre with no direct communication to the main byre or rick yard. The fattening animal (barrener) was tied up at the end of the main byre. The milch cows were turned out at pasture in the day and housed at night. The water supply of the milch cows came from a stream, rising a short distance away, which ran through the meadows. There was no possibility of any contamination by sewage, etc. The water supply of the heifers came from a well.

The food had been hay from the same rick, cake from the same consignment and roots from the same heap for weeks previously.

On March 1st one or two of the milch cows started to scour and by March 3rd all were scouring badly and were followed in turn by the heifers and the barrener. I was called in on the 3rd and found the diarrhœa to be extremely profuse, dark, watery, glazed and fœtid in odour. I noticed one cow, Brunelle, to be trembling and on taking the temperature found it to be 106·5°. She had started a hard dry cough the previous evening but had eaten her food both at night and morning (less heartily than usual). Further examination led to a diagnosis of pneumonia and she was given requisite treatment. A *blood test for anthrax proved negative.*

On March 5th another cow was found trembling and the temperature proved to be 106°. The temperatures of remaining cows when taken showed a remarkable variation :—106·5°, 107·8°, 98°, 98·5°, 98·2°, and the remainder normal. Further tests were made for anthrax but these proved negative. All the cows, including the three with subnormal temperatures, had a hard dry cough, but all were eating and cudding well. The temperatures were taken with two thermometers. In every case there was dysplnœa, but no pleuritic or pneumonic symptoms could be discovered on auscultation.

On March 6th, Brunelle died, and *post-mortem* was delayed, due to breakdown of the knacker's vehicle, for 24 hours. There was extremely rapid decomposition of the carcass.

Pneumonia was present, the lungs presenting a marbled appearance with great thickening of the interlobular septa. There were small pleuritic lesions without exudate.

The fourth stomach showed acute gastritis ; small hæmorrhages were present throughout the serous membranes, liver, kidneys and heart muscle, the hæmorrhages having a peculiar saxe-blue coloration. There was no enlargement of the spleen.

On the same day a second cow " Dixon " showed evidence of pleurisy.

All the remaining animals had ceased to scour. On March 7th the barrener which has previously been normal had a temperature of 106°. She had a similar cough to the other cows but ate well. The three cows with subnormal temperatures were still subnormal, being 99°, 99·4° and 99·6°. All were eating and cudding well but still coughing.

On March 8th, all about the same. On March 9th, the barrener's temperature became normal and the cough ceased. The cow next to it, however, had a temperature of 105° and was coughing and off its food.

On March 10th, " Dixon " was down in the byre and was shot. *Post-mortem* two hours after showed pleuropneumonia—no thoracic exudate, but fibrinous adhesions of lung and pleura, interlobular septa greatly thickened, a serous fluid exuding on cutting into them ; pin-head hæmorrhages of heart muscle, and pleura showing the similar characteristic light blue colour. The intestines contained only a little creamy greenish excreta. The fourth stomach showed gastritis ; pin-head hæmorrhages of liver, kidneys and peritoneum and fibrinous exudate (large amount) around the mesenteric lymphatic glands and bowels.

This cow's temperature had not dropped below 106°, in spite of all treatment, since March 5th, when she was taken ill.

A portion of the lung and of the liver respectively were sent to Dr. Hare and he replied that it was highly suspicious of contagious bovine pleuro-pneumonia and that he had reported the cases to the Ministry in consequence.

Prior to this I had called Mr. Ripley, M.R.C.V.S., into consultation, having come to a provisional diagnosis of hæmorrhagic septicæmia myself. After long investigation, Mr. Ripley came to the same conclusion.

I might mention here that I had discovered one departure from the normal in these cows prior to illness.

For two days before the scour started, the milch cows were turned out in a water meadow which in a normal season is inundated with water at this particular season of the year, but which was caked up with dry mud owing to the abnormally dry and mild season. I formed the opinion that it was here that the *B. bovisepticus* was picked up, incubation in favourable circumstances resulting in a vast increase in pathogenicity, and that the milch cows becoming infected passed it along—now as a contagious disease—to the barrener and the heifers.

The heifers were infected as follows—the custom was to move all the hay left by the cows when turned out into the heifers' byre for their consumption.

Veterinary surgeons from the Ministry inspected the cows and pastures and made every investigation on March 13th. There was still one cow with pleuro-pneumonia—Rosie. She had been ill since the 5th, her temperature varying between 105·5 and 107·8°.

She was in calf. The calf was born dead at later date—March 22nd—and she made an uneventful recovery. Although large pleuritic lesions were present, she ate and cudded well all the time.

The cows with subnormal temperatures finally reached the normal at March 11th and three days afterwards were turned out to pasture. The cough disappeared simultaneously.

On April 3rd I received a letter from Dr. Hare informing me that he had isolated an organism of the hæmorrhagic septicæmia group which he believed to be the causal

*Communication presented to the Central Division, N.V.M.A., at its meeting at the Royal Veterinary College, Camden Town, on Thursday, May 1st, 1930.

factor of the pneumonia and that all tests had proved negative for contagious bovine pleuro-pneumonia.

At the commencement of the trouble, when attempting a diagnosis, I had taken blood smears and forwarded blood samples to Dr. Hare for examination for *B. bovisepticus*, all of which proved negative.

Contagious bovine pleuro-pneumonia appeared unlikely, since the disease is exotic and there had been no possibility of infection by contact with an imported infected animal (carrier) or by imported foodstuffs. There had also been no use of sera or vaccines on this particular farm imported from abroad.

I regret the hurried and unbalanced report of these cases, but it is the best I can do in the time available. I sincerely hope they will prove of interest to the members of the Central Division.

Oophorectomy of Cats.

By Hamilton Kirk, M.R.C.V.S.

I was interested to read Mr. Caldwell's clinical cases in the issue of the *Veterinary Record* for May 10th, particularly the description of his method of spaying cats. There are some points, however, upon which I should like to take issue with Mr. Caldwell.

It is not necessary, in the case of young cats, to apply a ligature above the ovary, but, although the writer does not say so, there are many instances in which it is highly advisable to ligature the horns of the uterus before returning the stumps into the abdominal cavity, especially in the case of adult cats.

Mr. Caldwell includes in his suture the peritoneum, muscles and skin; my own practice is to employ two layers of sutures, one to include peritoneum and muscles, and the other skin only. It is usually unnecessary to apply bandages or a coat when the flank operation is performed, but even when such coverings *are* applied, the sutures are still more or less accessible to germs, and any infection resulting in suppuration, is apt to be communicated along the needle hole to the peritoneum.

On the other hand, if two layers of sutures are inserted, any suppuration concerning the external layer is not, in my view, so likely to spread to the deep layer. When the operation is aseptically performed, however, suppuration is very rare and the result is uniformly good.

Mr. Caldwell states that, having shaved, disinfected and operated upon one flank, he then turns the cat over on to its other side and repeats the performance. I would point out that such a procedure is entirely unnecessary, as, having picked up the left ovary, he only has to trace the uterine horn along to its bifurcation to find the right horn and ovary. The complete operation is thus carried out on one side only.

Mr. Caldwell relates a case in which an operation through the linea alba ended in gangrene and death. I, too, in past years, have experienced a few failures with the ventral operation, and have often thought that a great contributory cause has been the accidental inclusion—between the edges of the wound—of abdominal fat. This tissue is devoid of healing properties, and when it gets caught up in a stitch, it prevents firm healing from taking place and keeps open an entrance for bacteria.

Finally, as regards anæsthesia, I have become a convert to Avertin since I heard Prof. Wright's paper on the subject. I have spayed three cats whilst they have been under its influence, and I have been entirely satisfied. I quite believe that ether and chloroform will soon be relegated to a back place when practitioners have realised the benefits of using Avertin.

The Value of Calcium Gluconate in Milk Fever.

By E. C. Bovett, M.R.C.V.S., Glastonbury, and L. W. Bovett, M.R.C.V.S., Bridgwater.

Since September of last year we have used nothing but calcium gluconate (Sandoz), as advised by Prof. Greig, in cases of milk fever, with the exception of one (the last reported here) when Ca. was not immediately available. The results have been uniformly satisfactory, and in our opinion it is a specific, most cases responding to, and being cured by, one injection, and probably all would have been had the first dose been sufficiently large, as a second injection has never failed to effect a complete cure.

We are so pleased with this more rational method of treating the disease that we are publishing our results in the hope that they may be of interest to, and give confidence in its use to, other practitioners, and also encourage Prof. Greig to carry on with his good work and tell us how many more diseases are due to deficiencies.

Case No. 1.—*Light I.*—January 19th: 10 a.m. Attacked with milk fever. 1 p.m. Cow down, but was got on to her feet with difficulty. Markedly staggery. Injected 2 ozs. calcium in 1 pint water. 6 p.m. On her feet and perfectly normal. Recovery uneventful.

Case No. 2.—*Light II.*—January 20th: Attacked with milk fever of mild type. Injected 2 ozs. calcium in 1 pint water. Recovery uneventful.

Case No. 3.—*Champion.*—January 24th: Paddling hind legs; fell down; soon unable to rise; head retracted to side. Injected 3 ozs. calcium in 2 pints water. One and a half hours later was normal in herself, but unable to rise. Twelve hours later on her feet. Recovery uneventful.

Case No. 4.—*Bell.*—February 7th: 4 p.m. Cow down. Seen at 6.30 p.m. Unconscious, head retracted to side. 3 ozs. calcium in 1½ pints water, given by gravitation subcutaneously. 9 p.m. Cow up and feeding but unsteady. Recovery uneventful.

Case No. 5.—*Maunder.*—February 11th: Cow found down in the morning. Seen 10.30 a.m. Quite unable to rise and partly insensible, but still able to sit up. Head retracted. Injected 2 ozs. calcium in 1 pint water. Recovery uneventful.

Case No. 6.—February 28th: 4 p.m. Cow down. 6.30 p.m. Quite unconscious and snoring. Injected 4 ozs. calcium. 9.30 p.m. Cow on her feet, and apparently normal. Recovery uneventful.

Case No. 7.—Cow had been attacked for several hours. 7 a.m. Injected 4 ozs. calcium given subcutaneously in the neck by gravitation. 11 a.m. Cow on her feet and apparently normal. Recovery uneventful.

Case No. 8.—*Cotton I.*—March 9th: Cow found down in the morning. 9.30 a.m. Given 2 ozs. calcium in 1 pint water subcutaneously by gravitation. 12 noon. Cow on her feet. Recovery uneventful.

Case No. 9.—*Cotton II.*—March 10th: Cow found down in the morning. 7.30 a.m. Unconscious. Head retracted to side. 3 ozs. calcium in 1½ pints water injected. 10 a.m. Cow on her feet. Recovery uneventful.

Case No. 10.—*Lumber.*—March 11th: 8 a.m. Cow down. 10 a.m. Injected 2 ozs. calcium in 1 pint water. Quite unable to rise, but resting naturally. 1 p.m. Cow on her feet. Recovery uneventful.

Case No. 11.—*Millard.*—April 3rd: Cow found down in the morning, but not seen until 4 p.m. Then found unconscious lying on her side. Injected 4 ozs. calcium in 2 pints water. 8 p.m. Cow on her feet. Recovery uneventful.

Case No. 12.—*Frampton.*—April 18th: Cow down, unable to rise, lying flat on side, but sudden movement caused general spasticity. Injected 3 ozs. calcium in 1½ pints water, and propped up as well as the stiff legs allowed. Two hours later cow on feet. Recovery uneventful.

Case No. 13.—*James.*—April 25th: 8 p.m. Cow down. Seen 10 p.m. Unable to rise but sitting up. Injected 2 ozs. calcium in 1 pint water. Up in the morning. Recovery uneventful.

Case No. 14.—*Cotton III.*—April 22nd: 10 a.m. Cow down. Seen 11.30 a.m.; still able to sit up. Injected 2 ozs. calcium in 1 pint water. 1 p.m. Cow on her feet. Recovery uneventful.

Case No. 15.—*Nurse.*—May 8th: 6 p.m. Cow down. 6.30 p.m. Injected 2 ozs. calcium in 1 pint water. 8 p.m. Cow on her feet, and quite steady on legs. Contrary to instructions, she was milked dry that evening and again in the morning, but was normal when seen at 9.30 a.m. 12.30 p.m. Again staggering and walking with stiff hocks. 5 p.m. Cow again down. 8 p.m. Quite unconscious, lying flat on side and snoring. Propped up. Injected 4 ozs. calcium in 2 pints water. 12 midnight. Was chewing her cud and was left. When seen at 6 a.m. was up and steady. Recovery uneventful.

Case No. 16.—*Coate.*—May 8th: 11.30 p.m. Cow staggering. Injected 2 ozs. calcium in 1 pint water. Steady in half an hour. Recovery uneventful.

Case No. 17.—*Gooden.*—May 8th: 3 p.m. Cow down. Unable to rise, but sitting up. Injected 2 ozs. calcium in 1 pint water. 5.30 p.m. Cow on her feet. Recovery uneventful. Cow gave 2 gallons of milk beside the calf next morning. We have treated this cow four times previously by inflation.

Case No. 18.—February 3rd: 5 a.m. Cow down. Quite comatose and snoring. Injected 2 ozs. calcium in 1 pint water. 11 a.m. Cow on her feet. Recovery rapid.

Case No. 19.—February 18th: 11 a.m. Cow down. Injected 2 ozs. calcium in 1 pint of water. She was chewing her cud in three quarters of an hour. 1 p.m. Cow on her feet. Recovery rapid and uneventful.

Case No. 20.—March 11th: 5 p.m. Cow showed incoordination of movements and soon went down. Injected 2 ozs. calcium in 1 pint water. 8.30. Cow up and feeding. Recovery uneventful.

Case No. 21.—March 18th: 5.30 p.m. Cow down and semi-conscious. Injected 2 ozs. calcium in 1 pint water. 10.30 p.m. Cow better, but not up, so the dose was repeated, and cow got up at 11.15 p.m., and thereafter recovery was uneventful. (We think she would have got up all right without a second dose, but, owing to the lateness of the hour, the dose was repeated.)

Case No. 22.—April 8th: 10 a.m. Cow down and comatose. Injected 2 ozs. of calcium in 1 pint of water. 2 p.m. Cow on her feet, and quite well when one of us saw her at 6 p.m. Next day she was down again, but feeding, chewing cud, etc. At 5 p.m. another injection given. 6.30 p.m. Cow up. Recovery uneventful.

Case No. 23.—May 11th: 6 p.m. Cow down. Saw her at 6.30 p.m. and got her up, but she staggered and showed all the signs of commencing milk fever. Injected 2 ozs. calcium in 1 pint of water, and cow did not go down again. 7 p.m. Cow feeding. Recovery uneventful.

Trollope (treated by udder inflation only).—May 7th: 2.30 a.m. Cow down. Had been attacked for two hours. Insensible, but struggling violently. Owing to a wrong diagnosis by the owner, calcium was not taken but the udder was inflated very hard with an enema pump. Cow did not appear much better until 12.30 p.m., but was up at 1.30 p.m. Since then she has gone on all right, but is now (May 17th) giving only 2 gallons of milk a day instead of 5 gallons, as she did before she was attacked.

This case is mentioned as a contrast to the other cases described above, in so far that, in the case treated by calcium, the milking quality of the cow remained unaffected.

Discussion and Summary.

It will be seen that the above 23 cases all showed specific response to calcium gluconate, and were rapidly and completely cured.

In our opinion, the calcium method is infinitely better than inflation as it is safer, quicker, cleaner and easier in application. This method is very popular with owners, too, as it does not interfere with the milking of the cow afterwards, nor have they to keep the calf muzzled or away from the cow.

My usual procedure is to inject subcutaneously by gravitation the whole quantity of the calcium solution at one point, but in the case of a tight-skinned animal I use three or four points of injection. I can inject a quart in this way in five to eight minutes.

Improved Milk Crusade.

"Gratifying success has attended the efforts of the advisory service provided by the West of Scotland College of Agriculture in promoting pure milk production in the West of Scotland," says the *North British Agriculturist* of May 1st. "The results, indeed, have been quite remarkable. The scheme was started in 1927, to enable dairy farmers, on payment of a small fee, to have their milk tested at frequent intervals. At the end of 1929 over 800 farmers, representing an approximate output of 17 million gallons, and involving the testing of 10,000 samples annually, were taking advantage of the scheme. It is a tribute to the far-seeing enterprise of the College in devising such a scheme that it has resulted in a marked reduction in the bacterial count of the milk from farms at which milk tests have been made during the past two years. The West of Scotland College are to be complimented upon the valuable work which they are carrying on in this important sphere.

Reports.

New Zealand Department of Agriculture.

Annual Report, 1928-29.

In reviewing this report it is pleasing to observe, in contrast with British agriculture, the words of the Minister :—

"The season may be recorded as an excellent one for our farming industries generally as regards both production and market returns." Continuing, he states: "With increasing competition it is essential still further to promote efficiency, to have lower working costs, and higher quality in production; in this work the Department will continue to take a leading part in co-operation with allied bodies."

Director-General's Remarks.

Dr. Reakes, C.B.E., M.R.C.V.S., the well-known and capable Director, under the heading *Fields and Pastures* states: "65 per cent. of the wheat crop is now manured under advice from the Division, and an increase of well-trained field instruction staff is highly desirable. Research on plant diseases, *e.g.*, those affecting swedes, turnips, cereals, peas, and potatoes, has been vigorously prosecuted."

Grass Lands.—Col. Young's report stated: "I have never seen so many sheep per acre in any country." His observations are borne out by the following statement extracted from Dr. Reakes' report, *viz.* :—

"The products from grass lands, *viz.*, mutton, lamb, wool, beef, butter fat, pork, bacon and veal, in the period 1907-1921 have increased in value from 16 to 32 millions. Between 1921 and the year under review the figures have risen to 43 millions.

The grass land farmer is to-day producing 40 per cent. more products per acre than he did eight or nine years ago; butter fat has doubled during that period with only 40 per cent. more cows and practically no increase in the area devoted to dairying, while over three million more sheep have been added to the flocks of the Dominion, and breeding ewes have increased by nearly 1,000,000 annually.

During the period 1920-1924 the annual value of grass land products on a standard price basis was £33,410,000. During 1924-1929 the value increased to £39,520,000. The yearly increases are very significant, *e.g.* :—

Year.	Increase.	Per cent. increase.
1924-25	3,500,000 ...	11
1925-26	3,540,000 ...	11
1926-27	6,022,000 ...	18
1927-28	7,680,000 ...	23
1928-29	9,780,000 (estimated)	29

Top Dressing.—The most outstanding feature in the report is the increase shown in top dressing with phosphates, *e.g.* :—

Year.	Amount of fertiliser. Tons.	Area dressed.
1926-27	180,000 ...	1,400,000
1927-28	245,000 ...	1,850,000
1928-29	315,000 ...	2,250,000

Animal Health.—The experience in New Zealand is that sheep thrive best on short feed of not too "watery" a nature, and keep in soundest health when they have to take plenty of exercise in order to obtain their daily ration. Incidentally, the same observations have been made in this country, and that short, young grass has more fattening properties than plentiful long grass. Dietetic causes associated with seasonal climatic conditions are considered primarily to induce *ante-partum* paralysis (so called sleepy sickness), extrusion of the vagina of ewes and pulpy kidneys in lambs. In-lamb ewes do best when prevented from getting too lazy and too fat internally. Extrusion of the vagina, considered by some farmers as infectious, has on investigation proved to be non-infectious. Contagious abortion, mammitis and sterility in dairy cows are receiving special attention. Trials were carried out with South African vaccine; reports to the present appear encouraging, but details are not yet sufficiently complete to form a definite opinion. It is considered that a good proportion of mammitis could be prevented if more care were exercised in maintenance of cleanliness in milking sheds and milking machines. Vaccines have been tried but without satisfactory results. Research work is still being conducted. A condition known as parturient eclampsia, not unlike milk fever but not responding to the usual milk fever treatment, caused serious losses. At present it is considered that the trouble is probably related to feeding conditions. Research work is being continued. Temporary sterility in cows is still troublesome; research work is being carried out in connection with dietetics, vitamins, etc., also as to whether infection may be carried from cow to cow by the bull.

Inspection of Meat.—Slaughter-house statistics show that 5·22 per cent. of bovines are infected with tuberculosis, being a slight increase of 0·12 per cent., chiefly in "Cull Cows" fattened for the butcher. Tuberculous animals discovered in saleyards and farms decreased by 4 per cent. Pigs showed a decrease of 0·38 per cent. infection by the same disease. Out of 714 composite samples of mixed milks submitted to biological examination, only four contained tubercle bacilli.

The more stringent examination of sheep carcasses in Britain has been met by an increase of the departmental meat inspection staff. New Zealand is fortunate in that its flocks appear to be only slightly affected with caseous lymphadenitis compared with those of some other countries.

Veterinary Laboratory.—Good work has been done under the direction of the officer in charge, and his report details work carried out on mammitis, tuberculosis, abortion, sterility, lamb mortality, arthritis, extrusion of the vagina, distemper in dogs, etc., experimental work in pigs, poultry diseases, identification of parasites and caseous lymphadenitis. With regard to the last-named disease, it is stated: "The outstanding feature is the ease with which small punctures are infected, and this leads possibly to a need for parasitic control." Research work on this disease is being carried out in various countries, and the present concensus of opinion seems to be that it is chiefly spread from the soil and introduced into the body through broken surfaces, *e.g.*, cuts when shearing, ear marking, castration, tailing, foot rot, dog bites, barbed-wire, injuries, thorn wounds, etc.; hence the necessity for increased hygienic precautions, not only in connection with those necessary

operations, but in the cleanliness and disinfection of collecting yards.

Reference is made to the disease in pigs, and it is stated that the Preisz Nocard bacillus has not been found in the lesions, but that other diphtheroids were the cause. It is known that a caseous lymphadenitis can be, and is, observable in which the Preisz Nocard bacillus may not be the causative organism; the point is, that imported carcasses in which such lesions are found cannot be passed as fit for human food, and should be looked for in the meat works in order to avoid carriage to Britain and destruction of the carcass after arrival.

The whole report shows the continued progress made by the intelligent New Zealand farmers in all branches of the industry, and reflects great credit on the Department and all its officers under the guidance of Dr. Reakes.

Birmingham. Report of the Chief Veterinary Officer for 1929.

The following extracts from the report are herewith given. The report shows a large amount of valuable public health work of various types apparently very well done.

Meat Inspection.

Number of Animals Slaughtered :—	
(*a*) In the Public Abattoirs	418,074
(*b*) In private slaughter houses, of which 50 are registered and 48 licensed, also two knackeries	288,488
	706,562

Diseased and Unsound Food.

Carcasses...	3,487
Including :—	
Beef (tuberculous)	402
Veal ,, ...	33
Pork ,, ...	167

Imported Meat.

	Tons.
Beef	10,756
Mutton	11,170
Offal	744

of which 160 carcasses of mutton, weighing 3 tons, 10 cwt., equal to six per cent., were found affected with caseous lymphadenitis.

Residual Value.

Residual value paid to owners in respect of carcasses and parts of carcasses surrendered as unfit for human food amounted to £502.

Public Health (Meat) Regulations.

Three prosecutions were instituted against butchers for exposing meat outside shops.

Registered Premises and Shops.

Visits made to premises, over 100,000.

Inspection of Cows and Cowsheds and Tuberculosis Order, 1925.

Summary.

Dairy Farms	106
,, ,, Cows in	1,474
,, ,, Visits to...	2,843
,, ,, Cases of Mastitis in City Dairies ...	34
,, ,, Cases of Tuberculous Mastitis ...	8
,, ,, Cases of Tuberculosis with Emaciation	9
,, ,, Cases of Tuberculosis with Chronic Cough	1
Samples of Milk taken from City Cows	125
,, ,, ,, ,, County Milk Supply	958
,, ,, which contained *B. tuberculosis*	64
,, ,, per centage contained *B. tuberculosis* (6·7)	
,, Number which contained *B. tuberculosis*	8
Visits to outside farms	73
Herds tested	23
Cows tested	1,929
,, passed test	1,738
,, failed to pass test	191

Major De Vine states :—

" During the years 1920 to 1929 the average percentage of infected milks has been 7·6 and so far as the Tuberculosis Order is applicable it has apparently had no material effect in the reduction of the percentage of infected milk supplied to Birmingham. This is no doubt due to the fact that when a cow is in such an advanced stage of the disease that it may be dealt with under the Order it will have infected its neighbours in the shed long before it is clinically affected to such an extent that it can be dealt with under the Order.

Eradication of Tuberculosis.

Under the scheme for eradication, two herds were discontinued and in two other cases the owners applied to come into the scheme, but after the herds (of 32 and 57 respectively) had been tested it was found that 47 per cent. and 44 per cent. reacted; the owners, therefore, decided not to come into the scheme.

Diseases of Animals Acts.

Importation of Animals.—71,684 animals were imported from Ireland.

Exportation and Transit of Animals.—1,387 animals were dealt with.

Number of visits made to various places	6,902
Anthrax cases	1
Parasitic Mange	4
,, ,, (animals affected)	30
Sheep scab on flocks	1
Swine-fever cases	29
Prosecution for offences	2

Horse Account.

Number of horses	464
Avarage cost to purchase	£83
Average sale price	£13 14 10
Annual depreciation	£10 18 8
Average length of service in years	6½
Average cost for keep per week	£1 10 6

World's Poultry Congress and the R.S.P.C.A.

Among the bodies to be represented at the Fourth World's Poultry Congress will be the Royal Society for Prevention of Cruelty to Animals. Those who are familiar with the varied fashions in which poultry are taken to market or sent by rail or road, know that some are decidedly susceptible of improvement. Perhaps we, in this country, are not so much in need of instruction in humanitarian methods as they are in countries where poultry are still carried to market tied by the legs in large bundles and thrown on to the ground, to be picked up and overhauled by a number of potential buyers. Much remains to be done, too, before some modern methods of packing, crating, handling and killing can pass muster. We are beginning to learn that humanitarianism is not a fad of the sentimentalist; apart from the decency inherent in humane treatment of the livestock that serve us, such stock is fitter for all service if properly handled. Fear, fright, and suffering have dangerous reactions. They affect the consumer of birds and beasts that have been improperly killed, by infecting him with certain toxins only recognised in recent years. The R.S.P.C.A. Exhibit will make a valuable addition to those already arranged, and its propaganda should have a measure of world-wide effect that none will deem superfluous.—*Congress News Letter.*

Abstracts.

[Vaccination of Calves against Tuberculosis with Calmette-Guèrin Culture, B.C.G. Haring, C. M.; Traum, J.; Hayes, F. M., and Henry, B. S. 1930. *Hilgardia.* Vol. IV, No. 12, p. 307.]

This contribution from the Californian Agricultural Experimental Station is of importance chiefly on account of the valuable work which has been carried out and partly because there is included a summary of previous investigations on the subject. The article, which contains some good illustrations, gives a description of the experimental work at the Station, and also of an attempt to control the disease by means of B.C.G. in a large commercial dairy herd.

On the whole, the authors' conclusions are strongly in support of the claims of Calmette, from whom the original cultures used for preparing the vaccine were obtained.

1.—The subcutaneous vaccination of cattle with 100 mgm. doses of B.C.G. conferred sufficient resistance to protect them against the fatal effects of intravenous (2 mgm.) or subcutaneous (50 mgm.) injections of virulent tubercle bacilli. On the other hand, 1,000 mgm. heat-killed tubercle bacilli failed to prevent the death from miliary tuberculosis of two calves following an intravenous injection of 2 mgm. of virulent tubercle bacilli; in fact, there was no distinguishable difference between the lesions of the non-vaccinated controls and those which had received the heat-killed tubercle bacilli.

2.—The authors found some evidence in support of the claim of Calmette that subcutaneous vaccination with B.C.G. is more effective than intravenous vaccination in creating resistance to tuberculosis.

3.—Fifty vaccinated calves and an equal number of unvaccinated controls were subjected to infection by feeding at frequent intervals large amounts of tuberculous tissues from cattle, or from rabbits or guinea-pigs inoculated therewith. In addition, two experiments, each involving two vaccinated and two control calves, were carried out in which the infective material used for test consisted of milk from the tuberculous udders of two cows. In the first experiment the milk was fed daily for 63 days and in the other experiment for 86 days.

In such feeding trials the vaccinated cattle showed less extensive lesions, as a rule, than the unvaccinated. The prolongation of the feeding of calves with massive doses of virulent tubercle bacilli apparently had no effect in increasing the number or size of the tuberculous lesions found on autopsy four to twelve months later. The calves which received from two to ten infecting feedings had just as extensive lesions, on the whole, as those animals which were fed from 20 to 26 additional doses of much larger numbers of virulent tubercle bacilli. This was observed in both the vaccinated and non-vaccinated groups.

4.—Feeding infection experiments with 12 calves following the intradermic intravenous or oral administration of B.C.G. and with 12 control calves indicated that these methods of vaccination are not superior to the subcutaneous.

5.—The resistance afforded by the vaccine was not always sufficient to prevent the penetration of the walls of the alimentary tract by virulent tubercle bacilli. In most cases this induced a caseation of the cervical and mesenteric lymph nodes. The chief protective effect of B.C.G. seems to be in retarding the extension of tuberculous processes occurring from infection received subsequent to vaccination.

6.—Apparently, the subcutaneous method of vaccination has furnished protection against the development of clinical cases of tuberculosis in heifers in a tuberculous dairy herd, in which an initial tuberculin test revealed 55 per cent. reactors.

7.—The non-progressive tuberculous changes or the local vaccination lesions, or both, will render the majority of vaccinated cattle hypersensitive for a time to the intradermal injection of tuberculin.

8.—B.C.G. appears to be somewhat effective in protecting against a fatal termination to massive infection.

9.—The resistance to tuberculosis conferred by subcutaneous, intravenous, intradermic, or oral methods of administration of B.C.G., as used at the California station, is not sufficient to justify the use of the vaccine on cattle where measures designed to eradicate tuberculosis in cattle are being successfully carried out. On the other hand, in countries or localities where control measures are proving ineffective or where eradication seems to be hopeless for many years in the future, the vaccine may eventually be found of economic value to cattle owners by preventing the occurrence of extensive or fatal lesions and by limiting the spread of the disease.

10.—Observations of the effect of B.C.G. in cattle, swine, rabbits, and guinea-pigs failed to detect the production of any lesions which could be proved to be virulent by reinoculation.

11.—In attempts at dissociation of B.C.G. cultures it was possible in certain circumstances to obtain variants simulating the R. and S. types of colonies as described by Petroff. Guinea-pigs inoculated with the S. type of colony showed no significant variations from those inoculated with the R. type. One rabbit, inoculated intravenously with about 50 mgm. of the S. type growth, when killed after an interval of three months showed the lungs to be studded with 1 to 2 mm. nodules, containing acid-fast bacilli. This lung tissue was reinoculated intramuscularly into two guinea-pigs. These animals were slaughtered at the end of 75 days, and showed no evidence of disease.

F. C. M.

[Statistics on the Campaign against Bovine Tuberculosis in Saxony in 1929 and New Hints on its Recognition and Control. Rautmann, H., *D.T.W.*, 1930, 38, 14, 212-5.]

Of the 783,165 cattle in Saxony (1928), 181,887 were of one year or under and 32,501 were bullocks or non-breeding bulls. Of the remainder, 198,501 (35 per cent.) underwent in 1928 a test in connection with the Tuberculosis Eradication Scheme. The campaign embraced 28,695 farms, the average number of animals on each being 7·3. From the previous year the numbers of parishes, milk companies and cattle insurance companies tested, have increased considerably. In connection with a systematic tuberculosis campaign, it is recommended that the help of insurance companies be obtained to discover those farms which have

a particular interest in combating the disease. These companies could soon reduce their premium, because the loss due to tuberculosis would, in a very short time, be greatly reduced.

The investigations of the scheme require not only the help of laboratory experts, but, in addition, that of local official and private veterinarians. Of the 420 veterinary surgeons situated in Saxony, 375 took a part in the scheme. It is worthy of attention that the number of cattle "investigated" has risen from 66,648 in 1924 to 198,736. This increase is to a great extent due to the distribution of illustrated tuberculosis notices to all parishes, the display of these in railway stations and in agricultural institutes. Of the 198,736 animals examined in 1929, 3,414 had tuberculosis of the lungs, 174 of the udder, 73 of the uterus, and seven of the bowel; thus, 3,666 cattle were "open"" cases.

A register of the farms and areas in the scheme was kept and a plan drawn out so that, by the insertion of pins, any farm under investigation could be seen at a glance.

In the laboratory, 22,096 tests were carried out: 13,062 on pulmonary discharge, 1,641 on milk, 357 on uterine exudate, 81 on fæces, and 6,949 on mixed milk samples.

In addition to the regular routine laboratory work of the scheme, scientific investigation was carried out on the cultivation and demonstration of the tubercle bacillus. Some interesting results of this research are as follows:—

(1) The tubercle bacillus does not grow so well on media made from bovine lymph glands as on the usual egg media.

(2) Growth was equal on coagulated serum, made from either sound or tuberculosis infected cattle.

(3) The kidney of artificially-infected guinea-pigs seldom, if ever, shows lesions. Media with a guineapig kidney base showed only a poor growth, whilst the addition of four per cent. glycerine permitted a good growth.

(4) For the diagnosis of those forms of uterine tuberculosis which cannot be ascertained through a clinical rectal examination, Hermansson's statement was investigated. This was, that in animals with irregularly recurring œstrum tubercle bacilli can be demonstrated in the catarrhal excretions of the genital mucous membrane in 88·3 per cent. of cases of tuberculosis of the uterus. Material from 160 cases was obtained and examined; in 60 the experimental animal (guineapig) died intercurrently; in 90 cases the result was negative.

Tuberculosis in young calves (up to three months) was observed in 87 instances. Examinations of uterine mucus of their mothers were positive in 63 cases.

J. H. M.

[**Effect of Air in the Vascular System and the Mechanism of Death.** Barry, D. T. *B.M.J.*, April, 1930. p. 689.]

The author in two series of experiments noted the reaction of dogs injected with air intravenously. One series was of dogs with "closed thorax," and in the second he used dogs with "opened thorax." He concludes that:—

(1) Dogs may recover from the effects of introducing 100 c.cms. of air into the jugular vein.

(2) Resistance to the effects is diminished in deep anæsthesia and after section of the vagi.

(3) The heart in some conditions is the organ which fails, but failure of the respiratory centre may be the cause of death in others. Apnœa is an important symptom, and ventricular fibrillation is not a common cause of death.

He remarks that, as regards treatment, the inhalation of oxygen while the respiratory centre is active is indicated, and that experimental animals exhibit marked powers of natural recovery and remedial measures should not be attributed with undue beneficial effect.

(*Note.*—This is of interest as compared with the advice usually given to avoid air when giving intravenous injections of medicants).

H. S. P.

[**A New Narcosis Mask for the Application of Inhalation-anæsthesia in small Animals.** Freese, W., *D.T.W.*, 1930, 38, 12, 182-3.]

The author discusses some methods of anæsthetising animals and notes their dangers and disadvantages. By cutting down the air supply and forcing the animal to inhale nearly "pure" chloroform, the danger of interfering with heart and lung action is very great. If too much air is allowed to enter (*e.g.*, with a badly fitting or too large mask) the anæsthetising will take a long time to accomplish. The author has designed the following type of mask. It consists of two parts, a leather cone firmly attached to the mouthpiece. This latter consists of a cylindrical metal tube 3 cm. long and 4·3 cm. in diameter, "closed" by a perforated metal disc. Over this mouthpiece fits a cap, also with a perforated end, so that when the cap is in position a space is left between the two perforated discs. The leather cone, 8 cm. in diameter at the free end, is firmly rivetted to the mouthpiece. This form of mask is suitable for the anæsthetisation of most breeds of dogs and also for cats and swine. The size of the cone may have to be enlarged for such as bull-dogs and St. Bernards.

The anæsthetic is poured on wool and this placed in the space formed by the two discs. (A kind of mixing chamber is thus formed.) If a more concentrated mixture is required, the air supply may be cut down by placing the palm of the hand over the end of the metal cap. No straps are used for attachment of the muzzle to the head, so that, if need be, the anæsthetising may be discontinued in a moment.

J. H. M.

A Noted Dairy Cow.

The Dairy Shorthorn cow Damory Kirklevington Fifth, the property of Messrs. E. R. Debenham and R. N. Tory, Anderson, Blandford, Dorset, is one of the most remarkable animals any of our cattle breeds has produced. On July 20th next, this cow will be 21 years old, and throughout her life she has been a regular breeder and liberal milker. On May 16th last her eighteenth calf was born, and milking records range up to 17,165¾-lb., or 1,716½ gallons, with her thirteenth calf, and her average for six consecutive lactations was 13,487½-lb. Her breeding and milking performances have been as notable for quality as for quantity. Her progeny include the famous Royal Show champion bulls Anderson Champion Bates and Anderson Royal Bates, as well as other prominent prizewinners in Anderson Priceless Bates, Anderson Matchless Bates, and Anderson Imperial Bates. The old cow was shown on only one occasion—at Yeovil in 1923, and at 14 years old she won the milk yield class against all breeds.

Review.

The Annual Magazine of the Union Society, Royal Veterinary College, London.

We welcome most heartily this new magazine which has just made its début.

Those of us who have had some experience of similar ventures know the amount of work, energy and perhaps bullying that must have been entailed in its production, especially by students who, when not at work for examinations, are only too ready to embark on adventure of an opposite kind. This little production, with green covers, is in very handy form and extends to 70 pages made up of prose, verse, the doings of the Union Society, and the various clubs associated with it, the O.T.C., etc., all this being interspersed with amusing notes, interviews, and even a cross-word puzzle. We cannot but hope that future generations of students will continue the good work, which shows much evidence of literary skill and a fine sense of humour.

The topical references will, of course, be least appreciated by students themselves, but post-graduates will doubtless recognise many of the allusions. If our memory serves us correctly, its predecessor of many years ago was a monthly effusion and one chiefly dealing with scientific matters, students' essays, and clinical cases, and which did not cater for the lighter side of student life. The present form of production is, perhaps, an improvement, making very entertaining reading, though future numbers might well contain clinical articles, which are always of interest. Although the buildings of this College are in a state of collapse, the doings of the students, as recorded, show abundant evidence of a spirit of *cameraderie* which augurs well for after-life, and shows that the social side is not being neglected, which is probably as important later on as the scientific. The editor deplores the want of *esprit de corps*, but this failing is not confined to the veterinary student, therefore he should take courage. The Union Society now appears to be well organised, and with sufficient funds at its disposal should be of inestimable value in improving the corporate life of the London students.

The Rugby team is a strong one and the O.T.C. has added fresh laurels in competition with other branches.

The ladies are, as usual, well to the fore, and are organising for work and play.

We congratulate the editors and committee on their initial effort and trust the profession, especially old London students, will all order a copy and so relieve them of any anxiety with regard to funds.

The cost is 1s. 6d., and copies can be obtained from the Editor at the Royal Veterinary College, London, N.W.1.

King's Birthday Honours.

The Honours List, issued on June 3rd, on the occasion of His Majesty's Birthday, included the name of the following member of the Veterinary Profession:—**O.B.E. (Military):** Major W. S. Mulvey, T.D., F.R.C.V.S.

Divisional Report.

Central Division, N.V.M.A.

Meeting at the Royal Veterinary College.

For the second successive time this year the members of this Division met at the Royal Veterinary College, Camden Town, and this meeting—held on May 1st—was again an outstanding success. For the attractive programme of their April meeting the Division were indebted to Principal Hobday and Professor McCunn; on this occasion another member of the College staff—Professor J. G. Wright—provided the members with a paper and demonstration of quite exceptional interest and of considerable importance.

The introduction of a new anæsthetic and the provision of practical proof of its efficacy, must always be a matter of moment, but when that product bids fair to solve the difficult problem of inducing satisfactory and safe anæsthesia or narcosis in the cat, and the minor one of anæsthetising dogs for operations on head and throat where the use of the mask is troublesome, then the matter becomes one of primary importance to the small animal practitioner. The paper in question was entitled "Surgical Anæsthesia by the Introduction into the Colon, via the Rectum, of "Avertin "—Tri-brom. ethyl alcohol," and its thoroughness was supplemented by the use of slides depicting the application of the method, and also by the very effective means of actual demonstration in a male cat (which was castrated when under the influence of the drug) and in a bitch.

The President (Professor James Macqueen) occupied the Chair, and there were also present Capt. L. S. Balls, Capt. J. Bell, Mr. W. Brown, Capt. R. Bryden, Mr. H. Bywater, Mr. R. E. C. Bullen, Mr. A. Cornish-Bowden, Principal F. T. G. Hobday, Mr. H. D. Jones, Major H. Kirk, Capt. W. J. Leyshon, Mr. G. H. Livesey, Professor J. McCunn, Mr. J. W. McIntosh, Capt. G. Dunlop-Martin, Dr. F. C. Minett, Mr. W. Perryman, Mr. R. A. Philp, Mr. C. Roberts, Miss Shedlock, Lt.-Col. P. W. Dayer-Smith, Mr. T. F. Spencer, Capt. A. Spicer, Capt. R. J. Stow, Mr. E. L. Stroud, Major F. J. Taylor, Capt. W. K. Townson, Messrs. D. E. Wilkinson, F. W. Willett, J. Willett, R. A. Willett, J. D. Williams, Dr. W. R. Wooldridge, Professor J. G. Wright and Capt. J. F. Macdonald, Hon. Secretary.

Visitors.—Misses Gertrude E. Knight and Olga B. Woodward, Messrs. J. Adamson, J. L. Buckingham, Bruce Balfour-Jones, A. J. Baxter, B. Caitland, R. D. Callaghan, J. W. H. Holmes, S. E. Holmans, D. Johnston, R. Machin, N. P. Male, E. O. Longley, J. O. Powley, F. Proud, C. W. Ottaway, J. C. Rix, W. B. Rodger and R. R. Willing.

Confirmation of the minutes of the previous meeting was postponed, pending their publication in the *Veterinary Record.*

Correspondence.—(1) From Mr. H. Bell, Major G. W. Dunkin, Dr. A. L. Sheather, Lt-Col. P. J. Simpson and Professor G. H. Wooldridge, apologising for their inability to attend the meeting.

The Hon. Secretary informed the meeting, amid applause, that Professor Wooldridge, though not sufficiently

strong to stand the strain of a long meeting, was yet so far recovered from his serious illness as to be within the precincts of the College that day.

(*a*) From Colonel W. A. Pallin, resigning from Fellowship because, having gone to live at Hythe, he would be unable to attend the meetings of the society. Colonel Pallin's resignation was accepted with regret.

Morbid Specimens and Cases of Interest.

Capt. R. J. Stow exhibited the head of a wire-hair terrier, and gave the following history. The dog was from four to five years' old and appeared in quite good health, but there was a nasty smell coming from his mouth and the owner informed him (Capt. Stow) that the terrier had had a certain amount of difficulty lately in swallowing his food. Examination of the mouth was strongly resisted, and necessitated the use of an anæsthetic before it could be properly carried out. He then found a large red mass in the pharynx, with an elongated, black-looking hole in it, and he thought the condition was due to the presence of some foreign body. He thought the better thing to do, however, was to push the chloroform and destroy the animal. This was done; he had shown the specimen to Dr. Hare that afternoon. The latter had not had time to make a careful examination, but thought that it was probably a malignant growth of some kind.

His next observations (proceeded Capt. Stow) would not be in the category of description of morbid specimens, but he thought they would be of interest. A client of his purchased two Guernsey heifers at a sale, and was informed at the time that these heifers, together with all the rest of the herd, had been inoculated against contagious abortion. About a fortnight after the heifers came home one of them aborted: the calf was one of about four to five months. The client then asked him to take a blood test of the other heifer. He did so, and sent the blood up to Dr. Hare, and the reply was positive. As that client's farm was hitherto free from contagious abortion he asked him (Capt. Stow) how he stood with the vendor of those heifers. The vendor, when written to on the matter, said that he was quite willing to take the two heifers back and return the money, but the point was that the purchaser's farm was now infected with contagious abortion, as the heifers had been injected with the live vaccine. It looked to Capt. Stow as if people who used the live vaccine and then sold their vaccinated stock, or moved it, would be spreading contagious abortion. The purchaser had asked him whether contagious abortion would have been brought on to his farm if the heifers had been inoculated with the dead vaccine; also, how he stood legally with the man who had introduced contagious abortion on to his farm through selling him the heifers.

Mr. C. Roberts observed that he thought that the whole thing hinged around the answer to the question whether or not the farmer who bought the two heifers knew that they had been vaccinated with live contagious abortion vaccine.

Dr. Minett said that he thought it was very probable that the heifer which aborted was affected before vaccination, aborting as the result of natural infection, and that vaccination had nothing to do with it.

The Hon. Secretary now read a communication which had been received from Mr. George N. Gould (Junr.) of Southampton, on the subject of an outbreak of hæmorrhagic septicæmia with pleuropneumonic symptoms. [Mr. Gould's communication is reported in the Clinical and Case Reports Section of this issue of the *Record*.—Ed.]

Nominations.—The following gentlemen were nominated for Fellowship of the Division:—

Mr. Donald Johnston, of Woking (proposed by Mr. Medlock; seconded by the Hon. Secretary); Mr. S. E. B. Balfour-Jones, of Brighton (proposed by Capt. Stow; seconded by Mr. Bullen) and Mr. S. E. Holmans of Bromley (proposed by Professor McCunn; seconded by Principal Hobday).

Paper.—The President now called upon Professor Wright to give his paper and demonstration on "Surgical Anæsthesia by the Introduction into the Colon, via the Rectum, of "Avertin"—Tri-brom. ethyl alcohol," Both were followed by the Fellows with the greatest interest, and promoted an animated discussion. [Paper and discussion are reproduced at the commencement of this issue of the *Record*.—Ed.]

In proposing a hearty vote of thanks to Professor Wright for his paper and demonstration, Capt. Stow said that they must all agree that it was the best programme they had had for a long time, especially as the subject matter concerned an anæsthetic which had been demonstrated to them as exceedingly useful in the smaller animals. He certainly meant to give "Rectal Avertin" a trial as soon as the opportunity arose.

The vote of thanks was accorded with enthusiasm.

On the proposition of Mr. Perryman thanks were also given to those who had brought morbid specimens and related interesting cases, and the meeting concluded with a similar tribute to the President for his conduct of the proceedings.

J. F. Macdonald, *Hon. Secretary.*

Notes and News.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

June 14th.—Meeting of the North of England Division, N.V.M.A., at Newcastle-on-Tyne.

June 16th.—Committee Meetings, N.V.M.A., at 2 Verulam Buildings, Gray's Inn, W.C.1:—Veterinary Advisory Officers', 2 p.m.; Editorial, 4.30 p.m.; followed by meeting of Provisional Committee.

June 16th.—D.V.S.M. Oral Examination commences.

June 25th.—Meeting of the Western Counties Division, N.V.M.A., at Torquay.

July 1st.—N.V.M.A. Quarterly Meetings.

July 2nd.—R.C.V.S. Quarterly Meetings.

July 3rd.—R.C.V.S. Quarterly Meetings.

July 4th.—R.C.V.S. Quarterly Meetings.

July 7th.—R.C.V.S. Membership Examination commences.

AUGUST 4th to 9th.—11th INTERNATIONAL VETERINARY CONGRESS, CENTRAL HALL, WESTMINSTER.

London Cart-Horse Parade.

Thousands of holiday-makers visited Regent's Park to see the London Cart-Horse Parade, which has been a Whit-Monday event for 40 years. The objects of the London Cart-Horse Parade Society are to improve the general condition and treatment of London cart horses, to encourage drivers to take a humane interest in the animals under their care, and to encourage the use of powerful cart horses for heavy work in the London streets. The success of the society is seen in the great increase in the number of competitors for the prizes, rosettes, and brasses which it awards. This year 876 horses were entered, and the drivers numbered 802, as compared with 834 horses and 739 drivers last year. In 1920 there were 733 horses and 506 drivers.

All drivers of cart horses within the Metropolitan Police area are eligible to compete for the prizes, and the judges, in making their awards, take into consideration each turn-out as a whole—horse, van, harness, and general appearance—giving due regard to the nature of the trade or business of the competitor. At the 1929 parade a sum of £515 was awarded to 740 drivers. In the course of the past 39 parades 26,884 horses have been examined by the judges, and cash premiums amounting to about £12,995, in addition to silver medals, diplomas, and brasses, have been awarded to the drivers. The cash premiums are awarded for long service and good character to drivers appearing in the parade who have been not less than 25 years in the continuous service of the same firm. The Isabel Constable prize of £3 10s. was awarded yesterday to William Grant, who has had 50 years' service with Messrs. John Mowlem & Co.

The municipal authorities have always taken an interest in the parade, and this year entries were received from the Corporation of London, City of Westminster, the Royal Borough of Kensington, and from the borough councils of Bethnal Green, Finsbury, St. Marylebone, Stepney, Stoke Newington, and Walthamstow. Other competitors included the railway companies, and large private firms engaged in the transport, contracting and distributing services in and around London.

The prizes were distributed by Lady Jacob, wife of Field-Marshal Sir Claud Jacob.

New Names for Milk Grades.

At the recently-held meeting of the Council of Agriculture for England, the Standing Committee, in a report on the grading of milk, suggested that the grade names should be altered as follows:—"Certified" to be called "Extra Special"; "Grade A (T.T.)" to become "Special"; "Grade A" to become "Standard"; and "Grade A (Pasteurised)" to be called "Standard Pasteurised."

Dr. Addison, Parliamentary Secretary to the Ministry of Agriculture (now Minister of Agriculture) said the time was ripe for an improved and simpler nomenclature and he welcomed the suggestion of the committee, whose report would be considered by the Ministry without delay.

It was stated in the course of discussion that there was no place in England which had such a high quality of milk as London, and tribute was paid to the companies and co-operative societies which were responsible for milk distribution in London.

With regard to the law relating to the sale of milk, the Standing Committee suggested that milk should be taken out of the Sale of Food and Drugs Act and dealt with in a separate measure.

Dr. Addison said the Ministry of Agriculture concurred with the view of the committee that the present law was unfair and sometimes operated hardly on a seller who had not, deliberately at all events, committed an offence. It was a very thorny question and all he could say was that his Department would take the matter up with the Ministry of Health.

. . . . .

Later in the proceedings Dr. Addison pointed out that the Ministry of Agriculture proposed to draft legislation with regard to the disinfection of market pens and crates, the prohibition or restriction of the movement of fowls in infected areas, and the control of the importance of poultry from countries where disease existed.

A resolution was passed asking the Ministry of Agriculture to impress on the Royal Veterinary College and other veterinary institutions the importance of discovering more than is now known of the diagnosis of the disease called "Johne's disease," which is a seriously increasing cattle complaint.

In Parliament.

In the House of Commons recently the following question and answer relative to the milk grades have been recorded:—

MILK (GRADING).

Dr. VERNON DAVIES asked the Minister of Health if his attention has been drawn to the recommendation of the Council of Agriculture for England that the grades of new milk recognised under the Milk (Special Designations) Order, 1923, should be altered, namely, that certified should be altered to extra special, Grade A (TT) to special, and Grade A to standard; and, seeing that the standard milk for this country would thus be the lowest grade milk, that it is not produced from tuberculin tested cows, and that the new designations are not self-explanatory to the consumer, what action, if any, does he propose to take with regard to this recommendation?

Mr. GREENWOOD: I have received a copy of the report embodying the recommendation to which the hon. Member refers. I will consider the recommendation as well as the hon. Member's criticism, but I cannot contemplate the introduction of legislation on this subject in the immediate future.

Dr. DAVIES: Would it be necessary for the right hon. Gentleman to inform the House before he makes any change, or has he power to do it without consulting the House?

Mr. GREENWOOD: I understand that the changes required would need legislation.

Major Charles Hartley Fatally Injured.

We deeply regret to record that Major C. Hartley, T.D., F.R.C.V.S., of Lincoln, who was in camp at Windmill Hill, Salisbury Plain, as Veterinary Officer, Nottinghamshire (Sherwood Rangers) Yeomanry, died on the morning of June 7th at the Military Hospital, Tidworth, from internal injuries sustained by being kicked by a troop horse on the previous day.

. . . . .

We regret to learn also that Mr. James Lindsay, M.R.C.V.S., Dumfries, had one of his legs broken in two places as the result of a horse he was attending at Winterseugh, Annan, falling on him. The accident occurred on Thursday of last week, and after it happened Mr. Lindsay attended another horse and drove himself home in his car. We are glad to say his progress is reported to be quite satisfactory.

Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

"Choking."

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—I was interested to read Mr. Baxter's method of treating choking in cattle by the use of arecoline, and shall certainly give it a good trial. I have been rather

dubious about using this drug on cattle, as I remember reading an article some years ago (I think it was by Mr. Rushie Grey, M.R.C.V.S., in the now defunct *Veterinary News*), and the results were bad (the cases, however, were not those of choking).

With regard to the treatment of choking in the horse, I always use a hypodermic injection of pilocarpine, in doses of 1 to 3 grains, as recommended by an American veterinarian named Steffen. This is a perfectly safe drug, and nothing like so drastic as arecoline. During the course of sixteen years' experience I have not known it to fail, and should have used it with every confidence on the case described by Mr. Little. I have not tried it on cattle, and as the obstruction in the case of cattle is usually a solid one, it is possible that it would not be so effective as arecoline in cases of cattle choking.

Yours faithfully,
J. F. D. Tutt, M.R.C.V.S.

1, St. Cross Road,
Winchester.
June 7th, 1930.

Veterinary Advisory Officers.

To the Editor of The Veterinary Record.

Sir,—With reference to your report of a discussion regarding the duties of Advisory Officers in the proceedings of the Council of the N.V.M.A., which appeared in your issue of May 3rd, I shall be glad if you will allow me to correct an impression that might possibly be gathered from reading words attributed to me. It would appear from your report that discussion on the subject took place during my year as President of the North Wales V.M.A. This was not so.

I am, Sir,
Yours faithfully,
J. Share-Jones.

The University of Liverpool.
June 6th, 1930.

R.C.V.S. Council Election.

To the Fellows and Members of the R.C.V.S.

Ladies and Gentlemen,—I beg to tender my most sincere thanks to those who recorded their vote in my favour at the recent Council Election.

I shall endeavour, as in the past, to support any action which in my opinion is in the interests of the profession, especially of the general practitioner.

I am,
Your obedient servant,
J. C. Coleman.

"The Limes,"
Croft Road, Swindon.
June 7th, 1930.

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To the Editor of the Veterinary Record.

Sir,—Will you kindly allow me to thank the members of the profession for their generous support in the recent election of members of Council, and to say that I hope to be able to justify their confidence?

Yours faithfully,
G. K. Walker.

Norman House,
Abingdon-on-Thames.
June 7th, 1930.

The Editor acknowledges the receipt of the following:—

Report of a meeting of the West of Scotland Division, N.V.M.A., from Mr. Donald Campbell, Hon. Secretary.

Communications from Professor B. Bang (Copenhagen), Messrs. J. E. Barnes (Colombo), W. P. Blount (Edinburgh), W. J. Cooper (Reigate), G. S. Cowin (Tanganyika), C. B. Davidson (Edinburgh), R. E. Glover (Cambridge), G. Mayall (Bolton), and Professor J. G. Wright (London).

Diseases of Animals Acts, 1894 to 1927.

SUMMARY OF RETURNS.

Period.	Anthrax.		Foot-and-Mouth Disease.		Glanders (including Farcy).§†		Parasitic Mange.§		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks confirmed.	Animals attacked.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 16 to 31 May, 1930	11	12	—	—	—	—	9	9	6	131	30
Corresponding period in—											
1929 ...	26	33	—	—	—	—	3	6	19	155	82
1928 ...	23	25	2	171	—	—	7	8	5	107	53
1927 ...	16	18	—	—	—	—	10	30	26	113	39
Total 1 Jan. to 31 May, 1930	199	211	—	—	—	—	134	197	249	1,172	438
Corresponding period in—											
1929 ...	214	243	20	1,804	—	—	129	258	320	730	381
1928 ...	290	325	10	8,655	—	—	180	378	279	744	366
1927 ...	229	283	23	2,172	—	—	207	362	336	683	280

Note.—The figures for the current year are approximate only.

† Including outbreaks in recently imported animals.

§ Excluding outbreaks in Army Horses.